



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 30, 2003

U.S. Army Corps of Engineers
Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

ATTN: Mr. Eric Alysmeier
NCDOT Coordinator

Dear Mr. Alysmeier;

Subject: **Nationwide Permit 23 and 33 Applications**; Halifax County, Bridge No. 62 over Beech Swamp on US 301 – NC 481, TIP No. B-2980, State Project No. 8.1301701, Federal Aid No. BRSTP-301(8)

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 62 in its existing location on US 301 – NC 481 over Beech Swamp. An on-site, two lane detour to the east of the existing bridge will be used to maintain traffic during construction. The existing bridge is 299 ft (91.2 m) long and has a clear roadway width of 26 ft (7.9 m). The new bridge will be approximately 380 ft (116 m) in length and 42 ft (12.8 m) in width. The bridge will have a 24 ft (7.2 m) travelway and 8 ft (2.4 m) offsets on each side. The new roadway will be at approximately the same elevation as the existing bridge.

This bridge replacement project went through the "Merger Process for Documents Processed as a CE." Concurrence Points 1 and 2 were agreed upon on April 12, 2001, and Concurrence Point 3 on February 14, 2002. Concurrence Point 4 with associated environmental commitments was signed on June 6, 2002. Enclosed please find the August 1998 Categorical Exclusion, permit drawings, half size plan sheets and Preconstruction Notification (PCN) form. In addition, copies of the USACE data forms are attached as requested during the August 2000 field review of this project.

IMPACTS TO WATERS OF THE UNITED STATES

The existing bridge is composed entirely of concrete. The bridge railings will be removed without dropping any components into Waters of the United States. However, there is potential for the remaining components of Bridge No. 62 to be dropped into

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Waters of the United States. The resulting potential temporary fill associated with the Bridge is approximately 290 yd³.

Demolition of the existing bridge will be accomplished by non-shattering techniques (e.g. sawing). In order to remove the substructure it will be necessary to place a temporary 10-foot x 20-foot wooden and /or metal platform next to a given bent location as a place for construction personnel to work while sawing apart each bent. The platform would be placed at each bent by a crane for a few days. Pieces of the sawed up concrete bent would be removed by crane. The platform will then be relocated to work on removal of the next bent

Project construction cannot be accomplished without impacting 0.84 acres of jurisdictional wetlands. Construction impacts for this project consist of 0.53 acres of fill in wetlands and 0.31 acres of mechanized clearing.

MITIGATION OPTIONS

The Corps of Engineers has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the Waters of the United States. Mitigation of wetland and surface water impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Executive Order 11990 (Protection of Wetlands) and Department of Transportation Order 5660.1A (Preservation of the Nations Wetlands), emphasize protection of the functions and values provided by wetlands. These directives require that new construction in wetlands be avoided as much as possible and that all practicable measures are taken to minimize or mitigate impacts to wetlands.

AVOIDANCE AND MINIMIZATION: The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design.

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project’s jurisdictional wetland and stream avoidance/minimization activities proposed or completed by NCDOT:

Minimization: Construction materials and equipment staging will occur on the approaches to the bridge. There will be no impacts to wetlands as a result of staging issues.

Minimization: Top down construction will be utilized on both the temporary onsite detour bridge as well as the new replacement structure for bridge No. 62. Neither the temporary or the permanent bridge will require workpads for their construction.

Minimization: Deck drains have been eliminated from the design. The proposed shoulder widths are adequate to accommodate the design spread without use of deck drains. On the south end of the bridge at End Bent 1, the stormwater discharge will be collected at the end of the bridge in a closed system and outleted to the west onto a 5' x 5' energy dissipater. This system, with a total drainage area of 0.1624 acres, will outlet into a wetland area located outside the riparian buffer zone (50 feet from the top of channel).

On the north end of the bridge at End Bent 2, the stormwater discharge will be collected at the end of the bridge in a closed system and conveyed via a trunkline for approximately 340 feet from the end of the proposed bridge. This system, with a total drainage area of 0.42 acres will be outleted to the east through a 10' x 10' preformed scour hole with riprap level spreader that is located outside the delineated wetlands.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in jurisdictional waters of the US and that the proposed action includes all practicable methods to avoid and/or minimize jurisdictional wetland and stream impacts that may result from such use.

COMPENSATION: The primary emphasis of the compensatory mitigation is to reestablish a condition that would have existed if the project were not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace wetland functions and values lost as a result of construction of the project. These methods consist of creation of new wetlands from uplands, borrow pits, and other non-wetland areas; restoration of wetlands; and enhancement of existing wetlands. Where such options may not be available, or when existing wetlands and wetland-surface water complexes are considered to be important resources worthy of preservation, consideration is given to preservation as at least one component of a compensatory mitigation proposal.

FHWA STEP DOWN COMPLIANCE: All compensatory mitigation must be in compliance with 23 CFR Part 777.9, "Mitigation of Impacts" that describes the actions that should be followed to qualify for Federal-aid highway funding. This process is known as the FHWA "Step Down" procedures:

1. Consideration must be given to mitigation within the right-of-way and should include the enhancement of existing wetlands and the creation of new wetlands in the highway median, borrow pit areas, interchange areas and along the roadside.
2. Where mitigation within the right-of-way does not fully offset wetland losses, compensatory mitigation may be conducted outside the right-of-way including enhancement, creation, and preservation.

Based upon the above, NCDOT proposes the following compensatory mitigation for the 0.84 acres of unavoidable wetland impacts. The NCDOT will replace the existing 299-foot long bridge over Beech Swamp with a new bridge approximately 380 feet in length. The additional bridge length will allow for the removal of about 80 linear feet of causeway in previously filled wetlands. The existing causeway will be removed and returned to an elevation resembling that of the adjacent wetlands. The removal of the old

causeway will mean that approximately 0.1 acres of fill will be removed. It is anticipated that once the causeway is removed, the area will return to the natural hydrologic cycle for the surrounding wetlands. The water will be able to flow unimpeded beneath the new structure, allowing the natural wetland hydrology to return. The NCDOT does not propose any vegetation planting or monitoring. The area to be restored is underneath the new bridge and would be virtually impossible to plant and equally difficult to monitor. The NCDOT fully expects natural colonization of native flora to occur around and under the removed causeway.

Based upon the agreements stipulated in the “Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District” (MOA), it is understood that the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP), will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since the subject project is listed in Exhibit 1, the remaining necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable impacts to 0.74 acres of jurisdictional wetlands will be offset by compensatory mitigation provided by the EEP program.

RESTORATION, REMOVAL, AND DISPOSAL PLAN

In accordance with CWA §404 NWP No. 33 (67 FR 2020, 2085; January 15, 2002), the “Notification” General Condition must include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources. The following is the proposed project’s restoration, removal, and disposal plan for Bridge No. 62:

- Restoration Plan: NCDOT’s Best Management Practices for Bridge Demolition and Removal will be followed. The contractor will be required to submit a plan for bridge demolition and debris removal to the Resident Engineer, and must receive written approval prior to initiation of demolition work. Areas disturbed by the wooden or metal work platforms will be allowed to revegetate naturally.
- Schedule: The project schedule calls for a production letting of November 18, 2003 with a projected date of availability of December 29, 2003. It is expected that the contractor will begin demolition of the bridge after completion of the temporary detour bridge and rerouted of traffic onto the temporary bridge.
- Removal and Disposal Plan: The contractor will be required to submit a reclamation plan for the removal of and disposal of all materials off-site at an upland location. The contractor will use excavating equipment to remove bridge demolition materials if necessary. Heavy-duty trucks, bulldozers, cranes and various other pieces of

mechanical equipment necessary for construction of roadways and bridges will be used on site.

TAR-PAMLICO RIVER BASIN RULES

Beech Swamp (sub-basin TAR04, Hydrologic Unit Code 03020102) is considered a surface water in the Tar-Pamlico River Basin; therefore the regulations pertaining to the Tar-Pamlico River Buffer Rules will apply. There are 5,101 sq. ft. of impacts to Buffer Zone One and 3,899 sq. ft. of impacts to Buffer Zone Two (Buffer Impacts Summary, Sheet 16 of 17). Buffer impacts are less than 150 linear feet and less than 0.33 acres, therefore, buffer mitigation is not required.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classification of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003 the United States Fish and Wildlife Service (USFWS) lists four federally protected species for Halifax County. (Table 1).

Table 1. Federally Protected Species in Halifax County

Common Name	Scientific Name	Federal Status	Biological Conclusion
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	No Effect
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No Effect
Dwarf wedge mussel	<i>Alasmidonta heterodon</i>	E	No Effect
Tar spiny mussel	<i>Elliptio steinsansana</i>	E	No Effect
T= a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. T(S/A) = a species likely to become endangered in the foreseeable future throughout all or a significant portion of its range.			

Surveys for the dwarf wedge mussel were performed by NCDOT biologists on August 18, 1998 using SCBA. Water depth ranged from 4 to 7 feet and visibility was limited; therefore tactile search methods were used. No evidence of any mussel fauna was noted. Due to the length of time elapsed since this survey, prior to initiation of construction activities NCDOT personnel will resurvey for the dwarf wedge mussel.

Subsequent to the completion of the Categorical Exclusion for this project, the USFWS has added the bald eagle to its list of federally protected species for Halifax County. Beech Swamp has a relatively closed canopy with little to no open water and does not provide suitable foraging or nesting habitat for the bald eagle. No areas of open water suitable for foraging are present within 5 miles of the project. A search of the NHP database (July 8, 2003) found no occurrences of the bald eagle within 1.5 miles of the project and no individual birds were observed during field activities. It can be concluded that the project will not impact this threatened species. Therefore, all federally protected species subject to Section 7 received a Biological Conclusion of "No Effect".

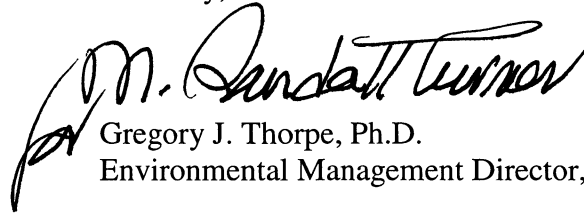
REGULATORY APPROVALS

In accordance with 23 CFR §771.115(b), the Federal Highway Administration (FHWA) processes the proposed project activities as a Categorical Exclusion. Per 67 FR 2020, January 15, 2002 and Clean Water Act (CWA) §404, NCDOT requests that these activities be authorized under a Nationwide Permit (NWP) No. 23 (Approved Categorical Exclusions) and NWP No. 33 (Temporary Construction, Access and Dewatering).

The NCDOT also anticipates that a CWA §401 General Certification (GC) No. 3403 (Approved Categorical Exclusions) and GC No. 3366 (Temporary Construction, Access and Dewatering) will apply to this project. In accordance with 15A NCAC 2H .0501(a), NCDOT is providing two copies of this application to the NC Department of Environment and Natural Resources (NCDENR), Division of Water Quality (DWQ) for review and issuance of a Tar-Pamlico Buffer Certification for impacts to Tar-Pamlico Buffers in compliance with the Tar-Pamlico Buffer Rules.

If you have any questions or need additional information, please call Mr. Tim Bassette, Sr. Project Manager at 919-715-1341.

Sincerely,



Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA Branch

GJT/tb

cc: Mr. John Dorney, NCDENR, Division of Water Quality (2 copies)
Mr. Gary Jordan, USFWS, Raleigh
Mr. Travis Wilson, NCWRC
Mr. William D. Gilmore, P.E., EEP, Raleigh
Mr. Omar Sultan, Programming and TIP
Ms. Debbie Barbour, P.E., Highway Design Branch
Mr. Greg Perfetti, P.E., Structure Design Unit
Mr. Jay Bennett, P.E., Roadway Design Unit
Mr. David Chang, P.E., Hydraulics Unit
Mr. Mark Staley, Roadside Environmental
Mr. D.R. Dupree, Division 4 Engineer
Mr. Jamie Shern, Division Environmental Officer
Mr. David Franklin, USACE, Wilmington (Cover Letter Only)

Office Use Only:

Form Version May 2002

USACE Action ID No. _____ DWQ No. _____

If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A" rather than leaving the space blank.

I. Processing

1. Check all of the approval(s) requested for this project:
☒ Section 404 Permit
☐ Section 10 Permit
☒ 401 Water Quality Certification
☒ Riparian or Watershed Buffer Rules
2. Nationwide, Regional or General Permit Number(s) Requested: NWP No. 23, NWP No. 33
3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☒
4. If payment into the North Carolina Wetlands Restoration Program (NCWRP) is proposed for mitigation of impacts (verify availability with NCWRP prior to submittal of PCN), complete section VIII and check here: ☐
5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
Name: North Carolina Department of Transportation
Mailing Address: Project Development & Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC. 27699-1548
Telephone Number: 919-733-3141 Fax Number: 919-733-9794
E-mail Address: gthorpe@dot.state.nc.us
2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
Name: N/A
Company Affiliation: N/A
Mailing Address: N/A
Telephone Number: N/A Fax Number: N/A
E-mail Address: N/A

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Proposed replacement of Bridge No. 62 on US 301-NC 481 over Beech Swamp.
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-2980
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Halifax Nearest Town: Enfield
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers, landmarks, etc.): I-95 North, to exit 154 (NC 481 East) follow to town of Enfield where US 301 and NC 481 merge and run in a northerly direction together. Follow this route out of town for approximately 0.6 miles, bridge No. 62 crosses Beech Swamp at this point.
5. Site coordinates, if available (UTM or Lat/Long): 261822E and 4008302N
(Note – If project is linear, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
6. Property size (acres): linear road project 1,200 feet in length.
7. Nearest body of water (stream/river/sound/ocean/lake): Beech Swamp
8. River Basin: Tar-Pamlico
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: undeveloped woodland

10. Describe the overall project in detail, including the type of equipment to be used: The project involves the replacement of Bridge No. 62 in its existing location on US 301 – NC 481 over Beech Swamp. An on-site, two lane detour to the east of the existing bridge will be used to maintain traffic during construction. Equipment includes, but is not limited to, bulldozers, backhoes, cranes, graders, and dump trucks.
11. Explain the purpose of the proposed work: Bridge No. 62 is in poor condition, with a sufficiency rating of 40.7 out of a possible 100. Bridge No. 62 has approximately 5 years of useful life left and will continue deteriorating until it is unusable.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

N/A

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. The applicant must also provide justification for these impacts in Section VII below. All proposed impacts, permanent and temporary, must be listed herein, and must be clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) must be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Wetland impacts are expected with this project in the form of fill and mechanized clearing. Surface waters will also be impacted during construction.

2. Individually list wetland impacts below:

Wetland Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Located within 100-year Floodplain** (yes/no)	Distance to Nearest Stream (linear feet)	Type of Wetland***
Site 1 18+00 – 20+86	Fill	0.03	Yes	0	Swamp Forest
Site 1 18+00 – 20+86	Mechanized Clearing	0.05	Yes	0	Swamp Forest
Site 2 17+23 – 20+86	Fill	0.19	Yes	0	Swamp Forest
Site 2 17+23 – 20+86	Mechanized Clearing	0.09	Yes	0	Swamp Forest
Site 3 23+92 – 27+50	Fill	0.06	Yes	0	Swamp Forest
Site 3 23+92 – 27+50	Mechanized Clearing	0.08	Yes	0	Swamp Forest
Site 4 23+92 – 27+28	Fill	0.25	Yes	0	Swamp Forest
Site 4 23+92 – 27+28	Mechanized Clearing	0.09	Yes	0	Swamp Forest

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

** 100-Year floodplains are identified through the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM), or FEMA-approved local floodplain maps. Maps are available through the FEMA Map Service Center at 1-800-358-9616, or online at <http://www.fema.gov>.

*** List a wetland type that best describes wetland to be impacted (e.g., freshwater/saltwater marsh, forested wetland, beaver pond, Carolina Bay, bog, etc.) Indicate if wetland is isolated (determination of isolation to be made by USACE only).

List the total acreage (estimated) of all existing wetlands on the property: n/a
 Total area of wetland impact proposed: 0.84 ac.

3. Individually list all intermittent and perennial stream impacts below:

Stream Impact Site Number (indicate on map)	Type of Impact*	Length of Impact (linear feet)	Stream Name**	Average Width of Stream Before Impact	Perennial or Intermittent? (please specify)
N/A	N/A	N/A	N/A	N/A	N/A

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: culverts and associated rip-rap, dams (separately list impacts due to both structure and flooding), relocation (include linear feet before and after, and net loss/gain), stabilization activities (cement wall, rip-rap, crib wall, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included.

** Stream names can be found on USGS topographic maps. If a stream has no name, list as UT (unnamed tributary) to the nearest downstream named stream into which it flows. USGS maps are available through the USGS at 1-800-358-9616, or online at

www.usgs.gov. Several internet sites also allow direct download and printing of USGS maps (e.g., www.topozone.com, www.mapquest.com, etc.).

Cumulative impacts (linear distance in feet) to all streams on site: 0 ac.

4. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.) below:

Open Water Impact Site Number (indicate on map)	Type of Impact*	Area of Impact (acres)	Name of Waterbody (if applicable)	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)
N/A	N/A	N/A	N/A	N/A

* List each impact separately and identify temporary impacts. Impacts include, but are not limited to: fill, excavation, dredging, flooding, drainage, bulkheads, etc.

5. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands
Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A

Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

See "Avoidance/Minimization" section of the permit application cover letter.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to

freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on March 9, 2000, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCWRP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

The proposed bridge span will be longer than the existing bridge span. A portion of the old approach will be removed and graded to adjacent wetland elevations to restore about 0.1 acres of wetlands beneath the new bridge. The remaining wetland mitigation will be obtained from through the EEP.

2. Mitigation may also be made by payment into the North Carolina Wetlands Restoration Program (NCWRP). Please note it is the applicant's responsibility to contact the NCWRP at (919) 733-5208 to determine availability and to request written approval of mitigation prior to submittal of a PCN. For additional information regarding the application process for the NCWRP, check the NCWRP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCWRP is proposed, please check the appropriate box on page three and provide the following information:

Amount of stream mitigation requested (linear feet): 0 linear ft.
Amount of buffer mitigation requested (square feet): 0 ft².
Amount of Riparian wetland mitigation requested (acres): 0 ac.
Amount of Non-riparian wetland mitigation requested (acres): 0 ac.
Amount of Coastal wetland mitigation requested (acres): 0 ac.

IX. Environmental Documentation (required by DWQ)

Does the project involve an expenditure of public (federal/state) funds or the use of public (federal/state) land?

Yes ☒ No ☐

If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?
Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.

Yes ☒ No ☐

If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter.

Yes ☐ No ☒

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)?

Yes ☒ No ☐ If you answered "yes", provide the following information:

Identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1	5,101	3	None
2	3,899	1.5	None
Total	9,000		

* Zone 1 extends out 30 feet perpendicular from near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Conservation Easement, Riparian Buffer Restoration / Enhancement, Preservation or

Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0260.

None required

XI. Stormwater (required by DWQ)

Describe impervious acreage (both existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property.

Approximately 50%-75% of existing and proposed land uses consist of, or will consist of, impervious surfaces. Best Management Practices (BMPs) will be strictly enforced for sedimentation and erosion control for the protection of surface waters and wetlands. Deck drains have been eliminated from the design. On the south end of the bridge at End Bent 1, the stormwater discharge will be collected at the end of the bridge in a closed system and outleted to the west into a 5'x5' energy dissipater. On the north end at End Bent 2, the stormwater discharge will be collected at the end of the bridge in a closed system and conveyed via a trunkline for approximately 240 feet from the end of the bridge.

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

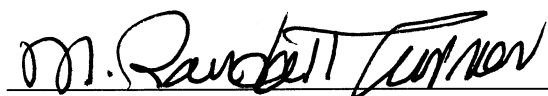
Is this an after-the-fact permit application?

Yes ☐ No ☒

XIV. Other Circumstances (Optional):

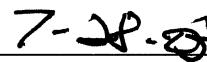
It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

The project let date is scheduled for November 18, 2003.



Applicant/Agent's Signature

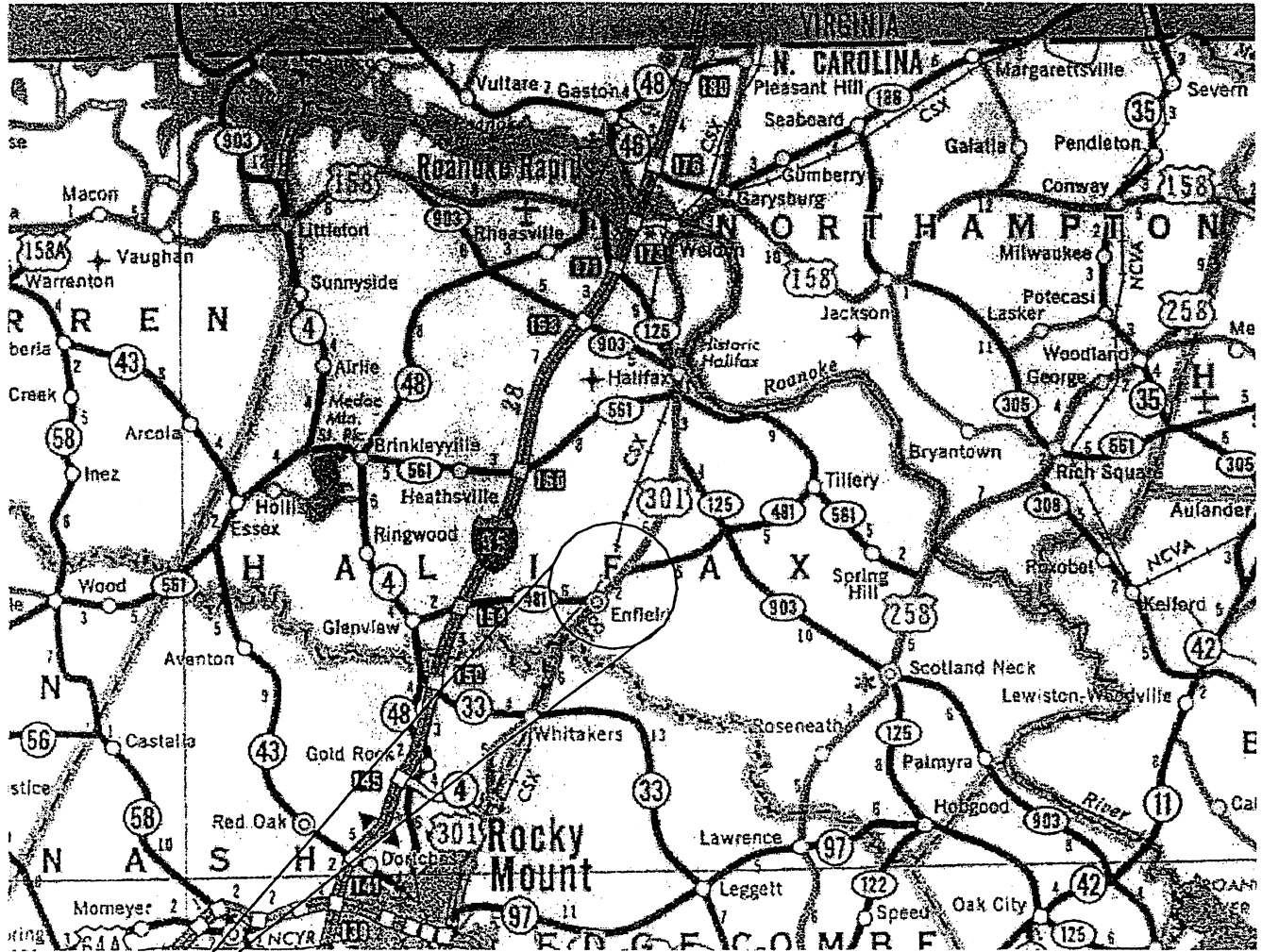
(Agent's signature is valid only if an authorization letter from the applicant is provided.)



Date

VICINITY MAP

B-2980



SITE

NORTH CAROLINA DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)

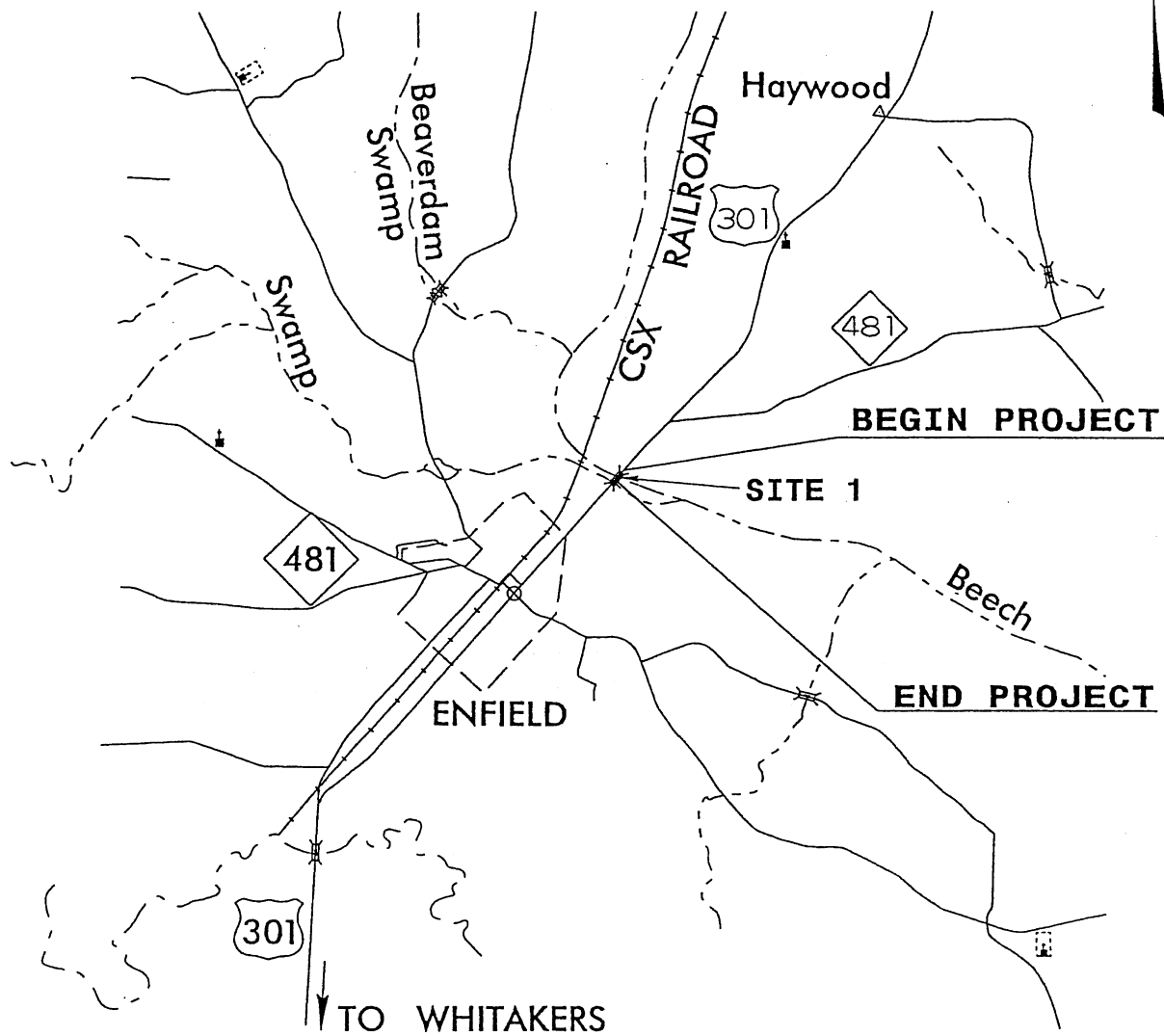
BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

DATE: 10-4-02

NOT TO SCALE

SHEET 1 OF 17

SITE MAP



NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(18-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

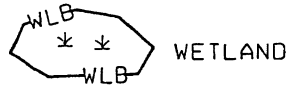
DATE: 10-4-02

NOT TO SCALE

SHEET 2 OF 17

PERMIT LEGEND

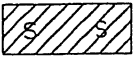
—WLB— WETLAND BOUNDARY



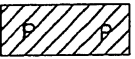
WETLAND



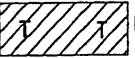
DENOTES FILL IN WETLAND



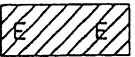
DENOTES FILL IN SURFACE WATER



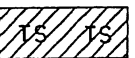
DENOTES FILL IN SURFACE WATER (POND)



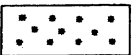
DENOTES TEMPORARY FILL IN WETLAND



DENOTES EXCAVATION IN WETLAND



DENOTES TEMPORARY FILL IN SURFACE WATER



DENOTES MECHANIZED CLEARING

← ← FLOW DIRECTION

—TB— TOP OF BANK

—WE— EDGE OF WATER

—C— PROP. LIMIT OF CUT

—F— PROP. LIMIT OF FILL

▲ PROP. RIGHT OF WAY

—NG— NATURAL GROUND

—PL— PROPERTY LINE

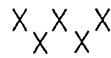
—TDE— TEMP. DRAINAGE EASEMENT

—PDE— PERMANENT DRAINAGE EASEMENT

—EAB— EXIST. ENDANGERED ANIMAL BOUNDARY

—EPB— EXIST. ENDANGERED PLANT BOUNDARY

—▽— WATER SURFACE



LIVE STAKES



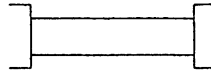
BOULDER



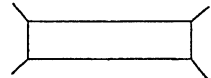
COIR FIBER ROLLS



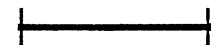
ADJACENT PROPERTY OWNER OR PARCEL NUMBER



PROPOSED BRIDGE



PROPOSED BOX CULVERT

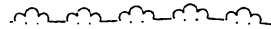


PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTING STRUCTURES)



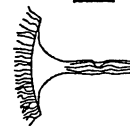
SINGLE TREE



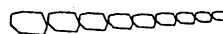
WOODS LINE



DRAINAGE INLET



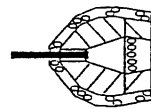
ROOTWAD



VANE



RIP RAP



RIP RAP ENERGY DISSIPATOR BASIN

— — — — — BUFFER ZONE

BUFFER ZONE

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

DATE: 10-4-02

NOT TO SCALE

SHEET 3 OF 17

MATCHLINE STA 19+00

TOWN OF ENFIELD

SITE 1

BEGIN STATE PROJECT
B-2980 -L- Sta. 16+33.56

BEECH SWAMP

18

250' BST US 301-NC 481

-L-

SITE 2

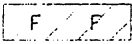

JOHN S. LOCKE, ET UX

2

BEGIN CONSTRUCTION
-L- Sta. 16+33.56
-DET- Sta. 16+33.56

PLAN VIEW SITE

WETLAND LEGEND

- WLB — WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING

NORTH CAROLINA DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)
BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP



TOWN OF ENFIELD

1

SITE 1

NAD 83

BEECH SWAMP

15" CSP
W/ 2 ELB

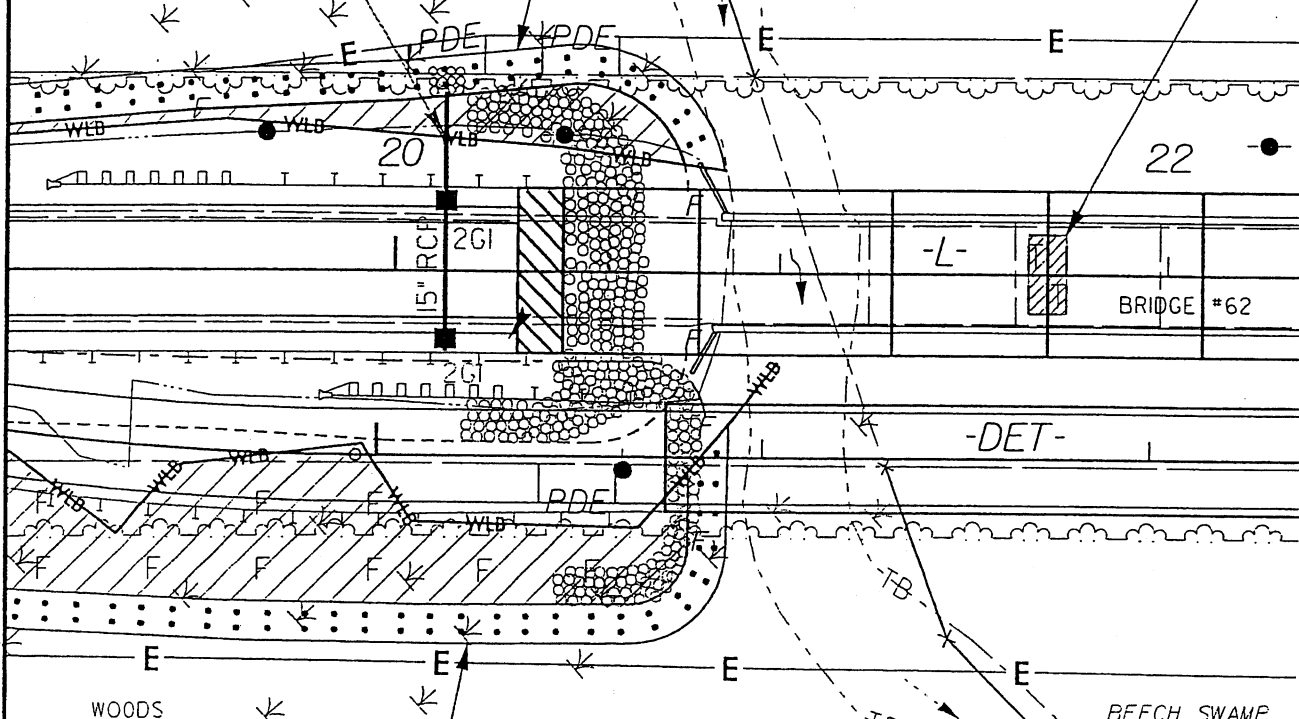
WOODS

WOODS

* TYPICAL TEMPORARY
WORKPAD

MATCHLINE STA 19+00

MATCHLINE STA 22+50



WOODS

BEECH SWAMP

JOHN S. LOCKE, ET UX

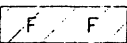
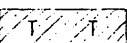
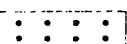
SITE 2

2

* DEMOLITION OF THE EXISTING BRIDGE WILL BE ACCOMPLISHED BY NON-SHATTERING TECHNIQUES (E.G. SAWING). IN ORDER TO REMOVE THE SUBSTRUCTURE IT WILL BE NECESSARY TO PLACE A TEMPORARY 10- FOOT X 20- FOOT WOODEN AND/OR METAL PLATFORM NEXT TO A GIVEN BENT LOCATION AS A PLACE FOR CONSTRUCTION PERSONNEL TO WORK WHILE SAWING APART EACH BENT. THE PLATFORM WOULD BE PLACED AT EACH BENT BY CRANE FOR A FEW DAYS. PIECES OF THE SAWED UP CONCRETE BENT WOULD BE REMOVED BY CRANE. THE PLATFORM WILL THEN BE RELOCATED TO WORK ON REMOVAL OF THE NEXT BENT.

PLAN VIEW SITE

WETLAND LEGEND

- WLB— WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES TEMPORARY FILL IN WETLANDS
-  DENOTES MECHANIZED CLEARING

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)

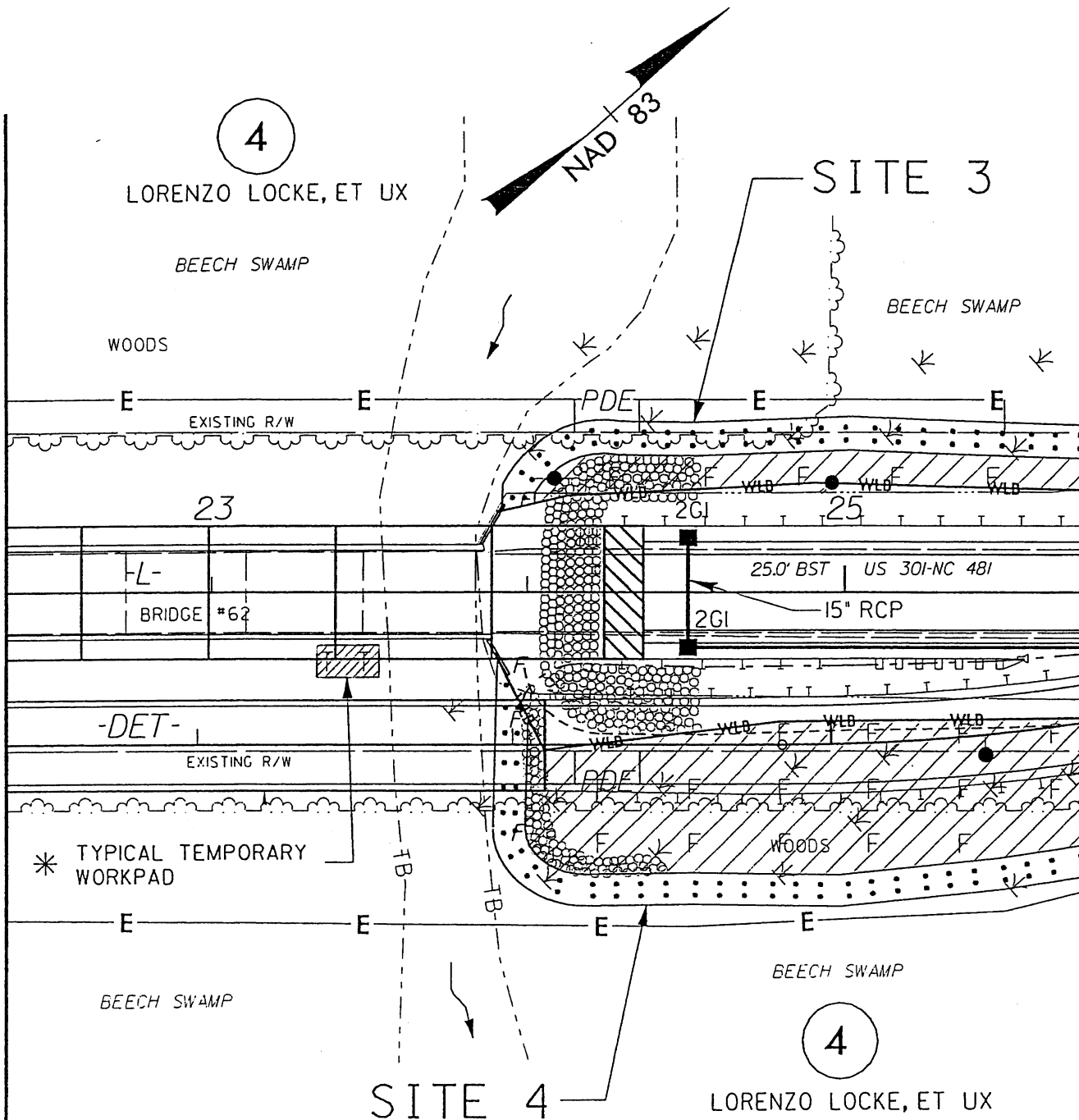
BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP



DATE: 10-4-02

SHEET 5 OF 17

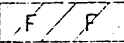
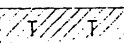
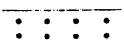
MATCHLINE STA 22+50



MATCHLINE STA 25+75

- * DEMOLITION OF THE EXISTING BRIDGE WILL BE ACCOMPLISHED BY NON-SHATTERING TECHNIQUES (E.G. SAWING). IN ORDER TO REMOVE THE SUBSTRUCTURE IT WILL BE NECESSARY TO PLACE A TEMPORARY 10- FOOT X 20- FOOT WOODEN AND/OR METAL PLATFORM NEXT TO A GIVEN BENT LOCATION AS A PLACE FOR CONSTRUCTION PERSONNEL TO WORK WHILE SAWING APART EACH BENT. THE PLATFORM WOULD BE PLACED AT EACH BENT BY CRANE FOR A FEW DAYS. PIECES OF THE SAWED UP CONCRETE BENT WOULD BE REMOVED BY CRANE. THE PLATFORM WILL THEN BE RELOCATED TO WORK ON REMOVAL OF THE NEXT BENT.

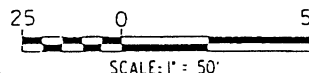
WETLAND LEGEND

- WLB— WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES TEMPORARY FILL IN WETLANDS
-  DENOTES MECHANIZED CLEARING

PLAN VIEW
SITENORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.I301701(B-2980)

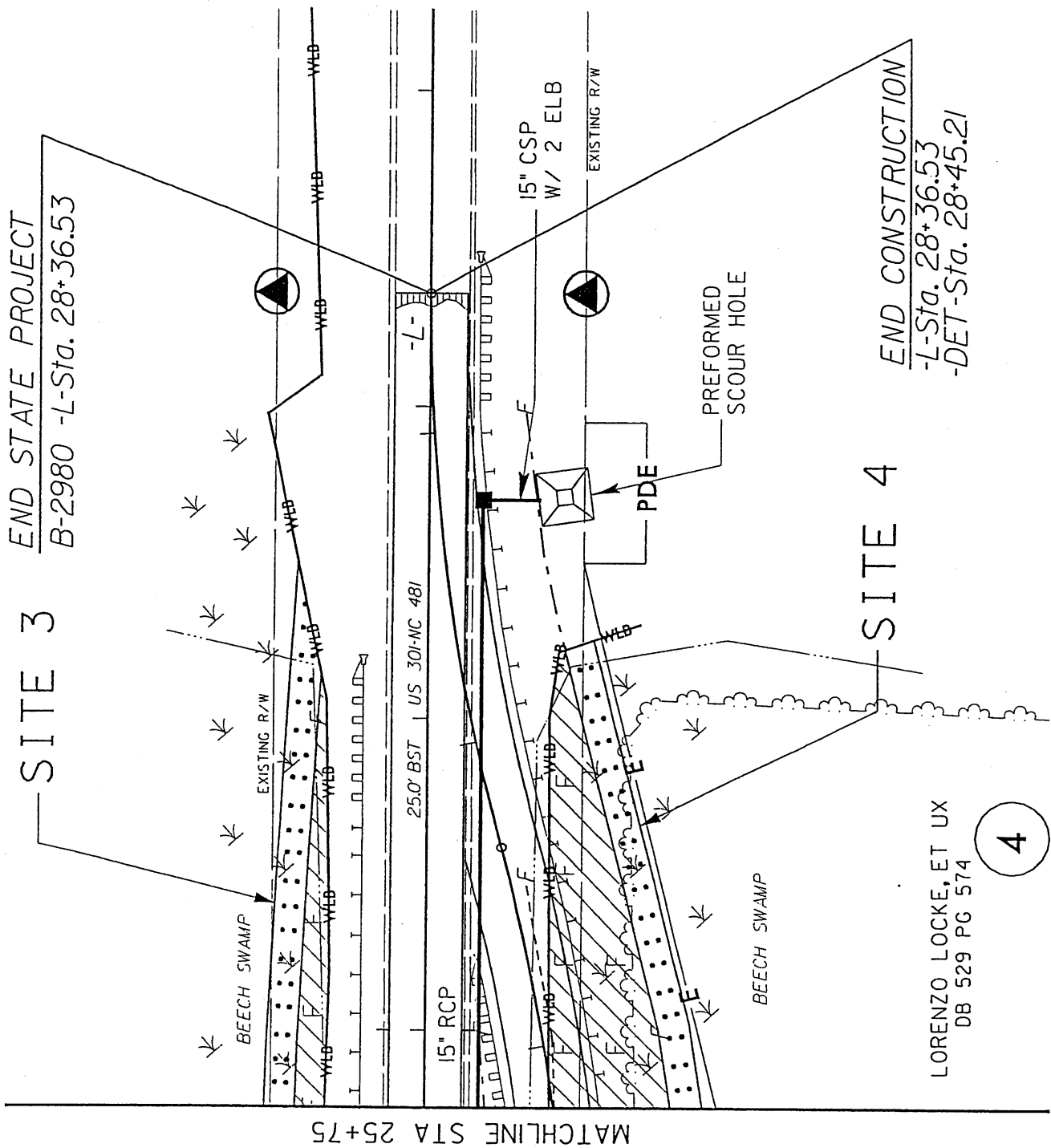
BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP



DATE: 10-4-02

SHEET 6 OF 17

200-274.dwg
10/10/02 10:29:00 Permits.Fee/1500-0298001c.dwg



PLAN VIEW SITE

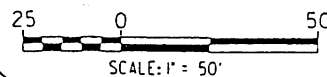
WETLAND LEGEND

- WLB — WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

NORTH CAROLINA DEPARTMENT OF HIGHWAYS

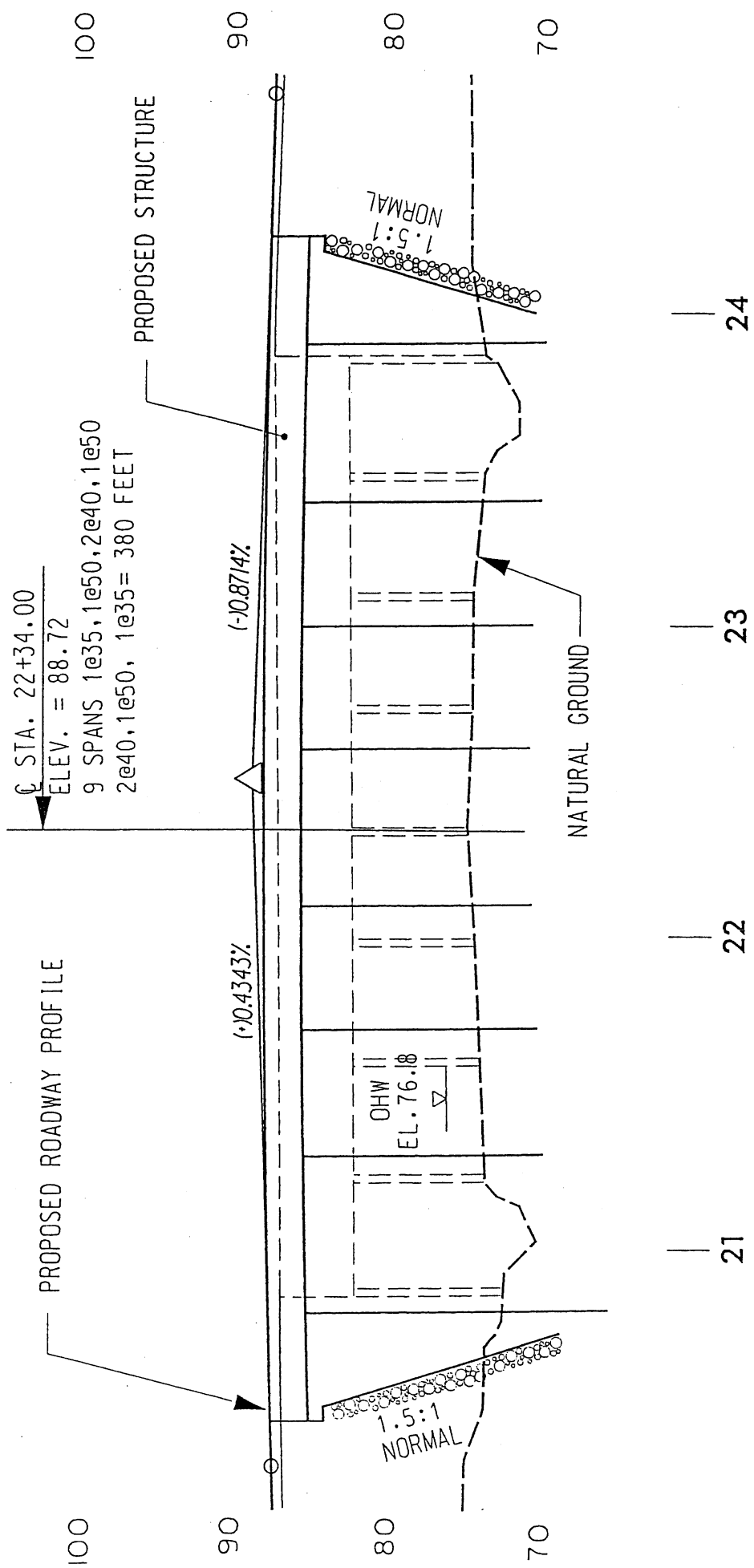
HALIFAX COUNTY
8.1301701(B-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

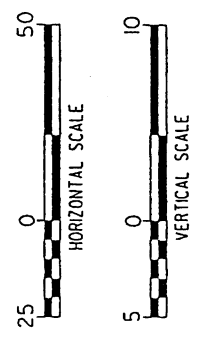


DATE: 10-4-02

SHEET 7 OF 17



PROFILE ALONG ROADWAY



NORTH CAROLINA
DEPARTMENT OF HIGHWAYS
HALIFAX COUNTY
8.130101 (8-2980)
BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	18+00 - 20+86	BRIDGE	0.03			0.05					
2	17+23 - 20+86	BRIDGE	0.19			0.09					
3	23+92 - 27+50	BRIDGE	0.06			0.08					
4	23+92 - 27+28	BRIDGE	0.25			0.09					

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 8.1301701 (B-2980)

SHEET 9 OF 17

SUMMARY OF AFFECTED PROPERTY OWNERS

[illegible]

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

DATE: 10-4-02

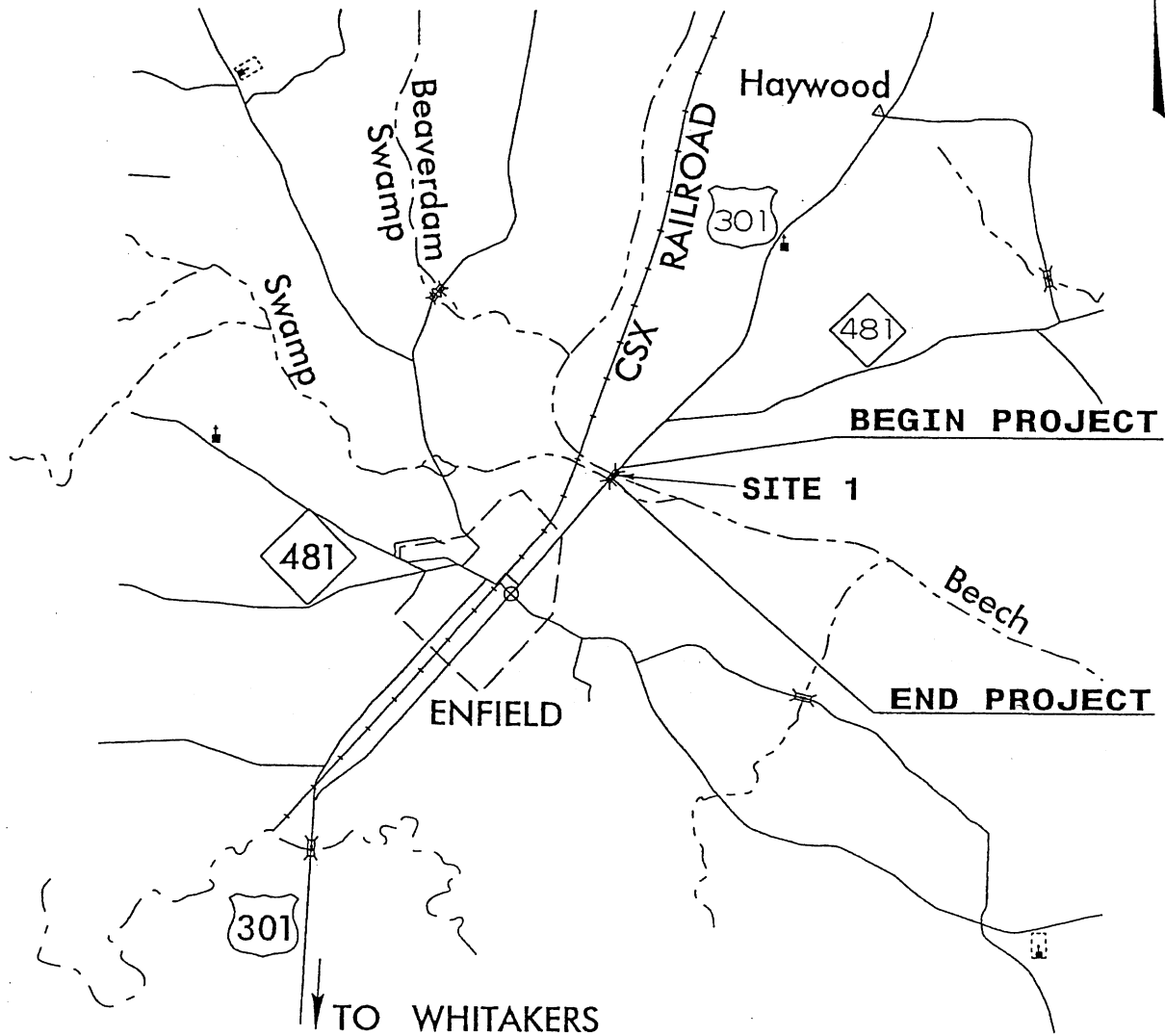
NOT TO SCALE

SHEET 10 OF 17



SHEET 11 OF 17

BUFFER SITE MAP



NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

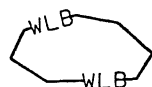
DATE: 10-4-02

NOT TO SCALE

SHEET 12 OF 17

BUFFER LEGEND

—WLB— WETLAND BOUNDARY

 WETLAND

 DENOTES PERMANENT IMPACTS - ZONE 1

 DENOTES PERMANENT IMPACTS - ZONE 2

—BZ— RIPARIAN BUFFER ZONE

—BZ1— RIPARIAN BUFFER ZONE 1
30 ft (9.2m)

—BZ2— RIPARIAN BUFFER ZONE 2
20 ft (6.1m)

← ← FLOW DIRECTION

—TB— TOP OF BANK

—WE— EDGE OF WATER

—C— PROP. LIMIT OF CUT

—F— PROP. LIMIT OF FILL

—▲— PROP. RIGHT OF WAY

—NG— NATURAL GROUND

—PL— PROPERTY LINE

—TDE— TEMP. DRAINAGE EASEMENT

—PDE— PERMANENT DRAINAGE EASEMENT

—EAB— EXIST. ENDANGERED ANIMAL BOUNDARY

—EPB— EXIST. ENDANGERED PLANT BOUNDARY

— — — — — WATER SURFACE

 DITCH / SWALE

X X X
X X

LIVE STAKES



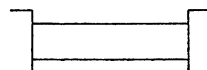
BOULDER

— — — — —

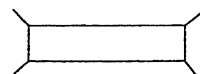
CORE FIBER ROLLS



ADJACENT PROPERTY OWNER OR PARCEL NUMBER



PROPOSED BRIDGE



PROPOSED BOX CULVERT

— — — — —

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTING STRUCTURES)



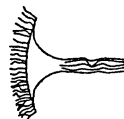
SINGLE TREE



WOODS LINE



DRAINAGE INLET



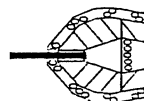
ROOTWAD



VANE



RIP RAP



RIP RAP ENERGY DISSIPATOR BASIN



PREFORMED SCOUR HOLE

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701(B-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

DATE: 10-4-02

NOT TO SCALE

SHEET 13 OF 17

TOWN OF ENFIELD

1

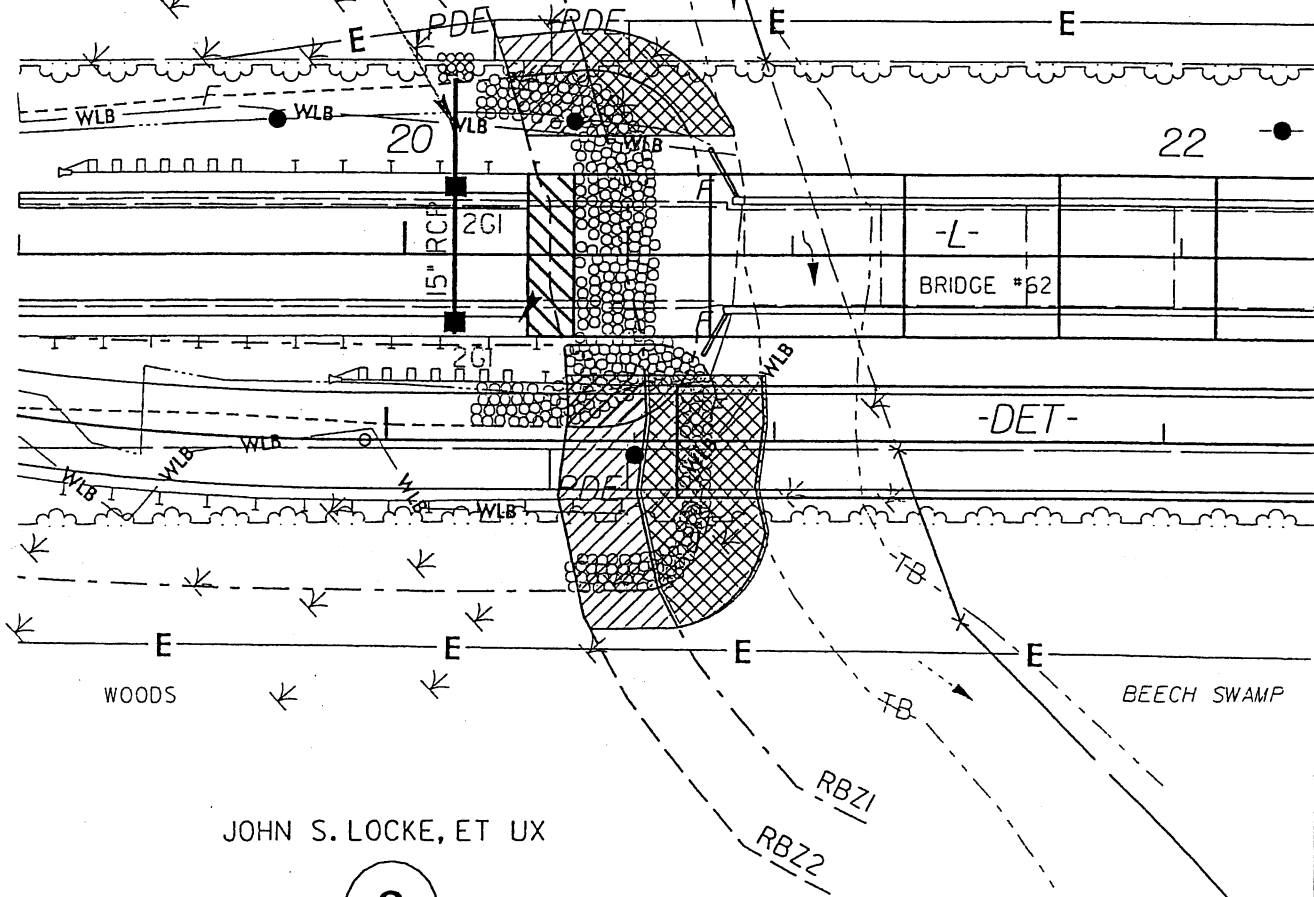
WOODS

NAD 83

BEECH SWAMP

WOODS

15" CSP
W/ 2 ELB



MATCHLINE STA 22+50

JOHN S. LOCKE, ET UX

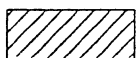
2

PLAN VIEW SITE 1

BUFFER LEGEND



DENOTES PERMANENT
IMPACTS - ZONE 1



DENOTES PERMANENT
IMPACTS - ZONE 2

— BZ1 —

RIPARIAN BUFFER ZONE 1
30 ft (9.2m)

— BZ2 —

RIPARIAN BUFFER ZONE 2
20 ft (6.1m)

NORTH CAROLINA DEPARTMENT OF HIGHWAYS

HALIFAX COUNTY
8.1301701 (8-2980)

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP



DATE: 10-4-02

SHEET 14 OF 17

LORENZO LOCKE, ET UX

BEECH SWAMP

WOODS

BEECH SWAMP

MATCHLINE STA 22+50

23

-7-

BRIDGE #62

-DET-

EXISTING R/W

PDF-

RBZ

2872

WLB

WLB

25.0' BS

US 301-NC 481

—15" RCP

WOODS

BEECH SWAMP

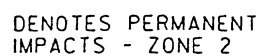
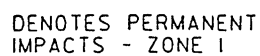
LORENZO LOCKE, ET UX

4

NAD-83

PLAN VIEW
SITE 1

BUFFER LEGEND

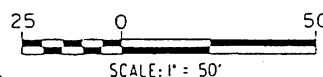


—BZ2— RIPARIAN BUFFER ZONE 2
20 ft (6.1m)

DATE: 10-4-02

NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP



SHEET 15 OF 17

BUFFER IMPACTS SUMMARY

[illegible]

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

HALIFAX COUNTY
PROJECT: 8.1301701 (B-2980)

10/4/2002
SHEET 6 OF 17

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NORTH CAROLINA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 62
ON US 301- NC 481
OVER BEACH SWAMP

11/00

Halifax County,
Bridge No. 62 on US 301 - NC 481
Over Beech Swamp
Federal Aid Project BRSTP - 301(8)
State Project 8.1301701
TIP Project B-2980

CATEGORICAL EXCLUSION

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

AND

N. C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED:

8-28-98
Date for William D. Gilmore, P. E., Manager
Planning and Environmental Branch

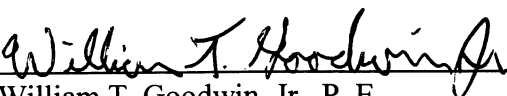
8-31-98
Date for Nicholas L. Graf, P. E.
Division Administrator, FHWA

Halifax County,
Bridge No. 62 on US 301 - NC 481
Over Beech Swamp
Federal Aid Project BRSTP - 301(8)
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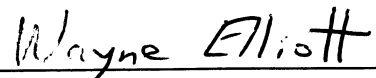
CATEGORICAL EXCLUSION


August 1998

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Halifax County,
Bridge No. 62 on US 301 - NC 481
Over Beech Swamp
Federal Aid Project BRSTP - 301(8)
State Project 8.1301701
TIP Project B-2980

I. SUMMARY OF PROJECT

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 62 in Halifax County. This bridge is listed in the 1998-2004 Transportation Improvement Program (TIP) as a bridge replacement project. NCDOT and the Federal Highway Administration (FHWA) classify this project as a federal Categorical Exclusion. These agencies expect no notable environmental impacts.

NCDOT will replace Bridge No. 62 in its existing location as shown by Alternate One in Figure 2. NCDOT recommends replacing the existing structure with a new bridge. The bridge will be approximately 100 meters (330 feet) in length and 12.0 meters (40 feet) in width. The bridge will have a 7.2 meter (24 foot) travelway and 2.4 meter (8 foot) offsets on each side. The approach roadway will consist of a 7.2 meter (24 foot) travelway, 1.2 meter (4 foot) paved shoulders and a total shoulder width of at least 2.4 meters (8 feet). The new roadway will be at approximately the same elevation as the existing bridge. Traffic will be maintained on a temporary on-site detour bridge located just east of the existing bridge during construction. The completed project will provide a design speed of approximately 100 km/h (60 mph).

The estimated cost is \$ 2,521,000 including \$ 21,000 for right of way acquisition and \$ 2,500,000 for construction. The estimated cost included in the 1998-2004 TIP is \$ 1,025,000.

II. ANTICIPATED DESIGN EXCEPTIONS

NCDOT is not expected to need any design exceptions for this project.

III. SUMMARY OF PROJECT COMMITMENTS

All standard procedures and measures will be implemented to avoid or minimize environmental impacts. All applicable Best Management Practices will be installed and properly maintained during project construction.

In accordance with the provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the Corps of Engineers for the discharge of dredged or fill material into "Waters of the United States." A Corps of Engineers Nationwide Permit # 23 will likely be applicable for this project.

A North Carolina Division of Environmental Management (DEM) Section 401 Water Quality General Certification will be obtained prior to issue of the Corps of Engineers Nationwide Permit # 23.

Any concrete used in construction of the proposed structure will be contained in a dry work area to prevent direct contact with stream water during concrete curing.

Once construction of the new bridge is complete, the temporary detour will be removed. Approach fill will be removed to natural grade and the area will be planted with native grasses and/or tree species as appropriate.

IV. EXISTING CONDITIONS

NCDOT classifies US 301 - NC 481 as a Rural Major Arterial Route in the Statewide Functional Classification System. The surrounding area is primarily wooded with a scattering of development, particularly southward towards the Town of Enfield.

Near Bridge No. 62, US 301 - NC 481 is a two lane paved road, 8.5 meters (28 feet) wide including 0.6 meter (2 foot) paved shoulders. The roadway also has approximately 1.5 meters (5 feet) of grassed shoulder beyond the edge of pavement. Both vertical and horizontal alignments in the area are good.

NCDOT built Bridge No. 62 in 1923 and widened it in 1940. The bridge has an asphalt overlay surface on reinforced concrete deck girders. The bents are reinforced concrete post and beams, and the end bents are reinforced concrete abutments. The deck of Bridge No. 62 is 4.6 meters (15 feet) above the streambed. Water depth is approximately 1.5 meter (5.0 feet) in the project area. The bridge is 91.2 meters (299 feet) long with a 7.9 meter (26 foot) roadway width. It carries two lanes of traffic and is not currently posted for single vehicles or for Truck-tractor Semi-trailer (TTST).

According to Bridge Maintenance Unit records, the sufficiency rating of Bridge No. 62 is 48.9 of a possible 100.0.

The current traffic volume is 4000 vehicles per day (VPD), projected to 8200 VPD by the design year (2020). These traffic volumes include 6% TTSTs and 5% Duals. No speed limit is posted in the project area, therefore it is assumed to be 55 mph by statute.

Traffic Engineering accident records indicate no accidents were reported in the vicinity of Bridge No. 62 during a recent three year period.

The Halifax County School Bus Transportation Coordinator has indicated that 11 buses use this route twice a day during the school year. Maintaining traffic on-site would be preferred due to several of the buses needing to provide service to children on both sides of the bridge site, and the length of the off-site detour involved.

V. ALTERNATES

Alternate One (Recommended) - replace the bridge in the existing location with a new bridge.

The new bridge will be 100 meters (330 feet) by 12.0 meters (40 feet). Traffic will be maintained along an on-site detour located east of the existing roadway, as shown in Figure 2.

An on-site detour to the west would have greater impacts to wetlands and/or surface waters of Beech Swamp than the recommended alternate.

There is not a reasonable off-site detour route considering the amount of traffic on US 301 - NC 481. The shortest detour route (4 miles of indirect travel) would generate road user costs in excess of \$ 2,000,000 over the approximate 15-month construction period. This cost is far greater than the cost of an on-site detour, so an alternate for road closure during construction is not reasonable.

The “do-nothing” alternate is not practical. The existing bridge would continue deteriorating until it was unusable. This would require closing the road, or continued intensive maintenance.

VI. COST ESTIMATE

	Alternate One Recommended
Structure	\$ 1,117,000
Roadway Approaches	198,000
Detour Structure & Approaches	756,000
Structure Removal	79,000
Engineering & Contingencies	350,000
Total Construction	2,500,000
Right of Way & Utilities	21,000
TOTAL PROJECT COST	\$ 2,521,000

VII. RECOMMENDED IMPROVEMENTS

NCDOT will replace Bridge No. 62 in its existing location as shown by Alternate One in Figure 2. NCDOT recommends replacing the existing structure with a new bridge. The bridge will be approximately 100 meters (330 feet) in length and 12.0 meters (40 feet) in width. The bridge will have a 7.2 meter (24 foot) travelway and 2.4 meter (8 foot) offsets on each side. The approach roadway will consist of a 7.2 meter (24 foot) travelway, 1.2 meter (4 foot) paved shoulders and a total shoulder width of at least 2.4 meters (8 feet). The new roadway will be at approximately the same elevation as the existing bridge. Traffic will be maintained on a temporary on-site detour bridge approximately 90 meters (295 feet) in length and located just

east of the existing bridge during construction. The completed project will provide a design speed of approximately 100 km/h (60 mph).

NCDOT recommends Alternate 1 because it is the most reasonable and feasible alternate for replacing Bridge No. 62. An alternate with an on-site detour to the west would have greater environmental impacts. An off-site detour would cost the traveling public significantly more than the provision of an on-site detour. The alignment of this section of US 301 - NC 481 is not substandard so realignment is not warranted.

The Division Engineer has indicated that replacing Bridge No. 62 in-place with traffic maintained on-site during construction would be acceptable from his perspective.

Construction of Alternate 1 will not have a significant adverse impact on the floodplain or associated flood hazard.

NCDOT expects utility conflicts to be low for a project of this type and magnitude.

VIII. ENVIRONMENTAL EFFECTS

A. General Environmental Effects

The project is considered to be a “categorical exclusion” due to its limited scope and insignificant environmental consequences.

The bridge replacement will not have a substantial adverse effect on the quality of the human or natural environment with the use of current NCDOT standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No change in land use is expected to result from construction of the project.

No adverse effect on families or communities is anticipated. Right-of-way acquisition will be limited.

No adverse effect on public facilities or services is expected. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

There are no publicly owned parks, recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

There are no known hazardous waste sites in the project area.

B. Architectural and Archaeological Resources

The State Historic Preservation Office (SHPO) has indicated that there are no known archaeological sites in the project area and no unknown sites are likely to be found. Therefore, SHPO has recommended no architectural or archaeological surveys be conducted in connection with this project. (See SHPO Letter dated 3/7/97.) However, Bridge No. 62 and Bridge No. 47 are both over 50 years of age. Both bridges were evaluated and found not to be eligible for the National Register of Historic Places. (See Concurrence Form signed by SHPO on 9/9/97.)

C. Natural Systems

PHYSICAL RESOURCES

Regional Characteristics

The project area lies within the Coastal Plain Physiographic Province. Elevations in the project area range from approximately 23 to 24 meters (75 to 80 feet) National Geodetic Vertical Datum (NGVD).

The topography of the project vicinity consists of a relatively low-lying landscape having broad, branching rivers and swamps. Upland areas are largely forested or planted with agricultural crops. The proposed project crosses Beech Swamp northeast of Enfield. Beech Swamp is located within the Tar River drainage basin and is mostly wooded.

Soils

According to information received from the Halifax County Natural Resources Conservation Service (1989-1991), soils in the project area consist of Chastain and Bibb soils having 0 to 1% slopes. These soils are very deep, slowly permeable, poorly drained, and found on floodplains of rivers. These soils are also frequently flooded and are listed as a hydric soil by the NRCS. The presence of hydric soils may indicate the presence of wetlands. Other soil types within the project vicinity include Tomotley fine sandy loam, Seabrook loamy sand, and Roanoke loam.

Site Index, a measure of soil quality and productivity, is the average height (feet) that dominant and co-dominant trees of a given species attain in a specified number of years (typically 50). The Site Index applies to fully stocked, even-aged, unmanaged stands. The Chastain and Bibb soils within the project area have a Site Index that ranges from 90 to 100 for loblolly pine, sweetgum, water oak, blackgum, water tupelo, yellow poplar, Atlantic white cedar, and bald cypress.

Water Resources

Physical Characteristics of Surface Waters

The project is located in the Tar River basin. One surface water resource, Beech Swamp, will be impacted by the proposed project. A number of streams form Beech Swamp which originates about 35 kilometers (22 miles) northwest of the project area. Several of the larger streams are Beaverdam Swamp and Burnt Coat Swamp which drain into Marsh Swamp, which drains into Beech Swamp 0.8 kilometers (0.5 miles) upstream of the project area.

The main channel of Beech Swamp is approximately 46 meters (150 feet), wide on the western side of the bridge and approximately 30 meters (100 feet) wide on the eastern side of the bridge. This swamp system has an undefined channel and slow flow rate. The channel substrate consisted of clay and silt with minimal sand and gravel. Several small vegetated hummocks were observed within the channel. These hummocks primarily contained dense stands of *Polygonum* sp. and *Aneilema keisak*.

At the time of the field survey, the swamp averaged 1 meter (3.3 feet) in depth and the water was brown and turbid. Beech Swamp flows in a meandering fashion toward the southeast, approximately 19 kilometers (12 miles) to its confluence with Fishing Creek. Some floodplain areas appear to be seasonally flooded.

Best Usage Classification

Surface waters in North Carolina are assigned a classification by the Division of Environmental Management (DEM) that is designed to maintain, protect, and enhance water quality within the State. Beech Swamp (Index # 28-79-30) is classified as a Class C Sw NSW waterbody. Class C water resources are used for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Swamp waters (Sw) are waters which have slow velocities and other natural characteristics which are different from adjacent streams. Nutrient Sensitive Waters (NSW) are waters which are subject to growths of microscopic or macroscopic vegetation requiring limitations on nutrient inputs.

No waters classified as High Quality Waters (HWQ), Water Supplies (WS-I or WS-II) or Outstanding Resource Waters (ORW) occur within 1.6 kilometers (1 mile) of the project study area.

Water Quality

General Watershed Characteristics

Non-point source runoff from agricultural and forestry activities is likely to be the primary source of water quality degradation to the water resources located within the project vicinity. Inputs of non-point source pollution from impervious surfaces within the town of Enfield and from private residences within the project area may also contribute slightly to water quality degradation.

Point Source Dischargers

Point source discharges in North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) program administered by the DWQ. All dischargers are required to obtain a permit to discharge. According to the DWQ, the Enfield wastewater treatment facility (WWTP) discharges to Beech Swamp upstream of the project area. The treatment plant is permitted to discharge up to 0.5 million gallons per day (mgd).

Benthic Macroinvertebrate Ambient Network

The Benthic Macroinvertebrate Ambient Network (BMAN), managed by the DWQ and established in 1982, is part of an on-going ambient long-term water quality monitoring program. The program has established fixed water quality monitoring stations for selected benthic macroinvertebrates. Two BMAN stations have been established by DWQ along Beech Swamp, one upstream of the Enfield WWTP, and one at the US 301-NC 481 Bridge at the project site,

which also serves as the downstream station for the Enfield WWTP. This site was not rated for water quality as it is a swamp stream. This station was last sampled in May 1992. At that time, the Biotic Index for the US 301-NC 481 site was 8.67, which indicated an impact from the WWTP. Total taxa richness was 34. The dominant macroinvertebrates found were typical of a lotic depositional environment, and included the following types of organisms: two species of Coleopteran larvae, two species of Odonate larvae belonging to the family Libellulidae, four species of Chironomid larvae, one Hemipteran species belonging to the family Corixidae, several Oligochaete species, several species of isopods and amphipods, four species of gastropods and leeches.

Summary of Anticipated Impacts

Any action which affects water quality can adversely affect aquatic organisms. Temporary impacts during the construction phases may result in long-term impacts to the aquatic community. Physical impacts will be the most severe at the point of bridge replacement. Project construction may result in the following impacts to surface water resources:

- increased sediment loading and siltation as a consequence of watershed vegetation removal, erosion/and or construction.
- decreased light penetration/water clarity from increased sedimentation.
- changes in water temperature with vegetation removal.
- changes in the amount of available organic matter with vegetation removal.
- increased concentration of toxic compounds from highway runoff, construction activities and construction equipment, and spills.
- alteration of water levels and flows due to interruptions and/or additions to surface and groundwater flow from construction.

Construction impacts may not be restricted to the natural communities in which the construction activity occurs. Downstream communities could potentially be affected by stormwater runoff or sediments from the project site. NCDOT's Best Management Practices for the Protection of Surface Waters should be followed in order to minimize the amount of sediment being released by construction activities.

BIOTIC RESOURCES

Terrestrial and aquatic communities are included in the description of biotic resources. Living systems described in the following sections include communities of associated plants and animals. These descriptions refer to the dominant flora and fauna in each community and the relationship of these biotic components. Descriptions of the terrestrial systems are presented in the context of plant community classifications. These classifications follow Schafale and Weakley (1990) where possible. Representative animal species which are likely to occur in these habitats (based on published range distributions) are also cited.

Terrestrial Communities

Four distinct terrestrial communities were identified within the project area: a disturbed upland community, an upland forest, a swamp forest, and a disturbed wetland community. Dominant faunal components associated with these terrestrial areas will be discussed in the following community descriptions. Many species are adapted to the entire range of habitats found along the project alignment but may not be mentioned separately in each community description.

Disturbed Upland Community

This disturbed community includes the road shoulders, associated embankments, and a portion of the powerline easement on the east side of the road. Many plant species are adapted to these disturbed and regularly maintained areas. Regularly maintained areas are dominated by various grasses such as fescue and ryegrass, as well as plantain and white clover. In areas which are not regularly mowed along the embankment adjacent to the road shoulder, species including poison ivy, Virginia creeper, trumpet creeper, and ebony spleenwort predominate.

Along the powerline easement on the east side of NC US 301-NC 481 is an irregularly maintained area dominated by herbaceous species such as poison ivy, grape, and boneset as well as saplings and shrubs of sweetgum, willow oak, winged sumac, and dwarf huckleberry.

The animal species present in these disturbed habitats are opportunistic and capable of surviving on a variety of resources, ranging from vegetation (flowers, leaves, fruits, and seeds) to both living and dead faunal components. Northern mockingbirds, American robin and starlings are common birds that use these habitats. Due to the location and linear nature of this community it is unlikely that it is inhabited by any small mammals, reptiles or amphibians, except as they cross the road to forested habitats.

Upland Forest

This community occurs on both sides of the road approximately 76 meters (250 feet) north of the northern terminus of the bridge over Beech Swamp. The upland forest community is dominated by loblolly pine, red maple, and sweetgum. Herbaceous vegetation includes poison ivy, giant cane and Virginia creeper.

Although no mammals were directly observed during the site visit, this habitat type is often used by grey squirrels, white-tailed deer, raccoon, and opossum. Birds expected to use this habitat type for foraging and nesting include American robin, red-eyed vireo, American crow, Carolina chickadee, and tufted titmouse. Although only a green anole was observed during the site visit, additional reptiles and amphibians likely to use this area include box turtle, copperhead, eastern garter snake, and American toad.

This community most closely corresponds to the Mesic Mixed Hardwood Forest community of the NHP classification system, however it has been impacted by human activity.

Swamp Forest

The swamp forest community at the project site is the dominant community within the low-lying area associated with Beech Swamp. This community is located on both sides of US 301-NC 481, east and west of the disturbed emergent wetland areas associated with the utility easements, and comprising the length of the project area from north to south until a point approximately 76 meters (250 feet) north of the northern terminus of the US 301-NC 481 bridge. At the time of the site visit, this area was either inundated or had saturated soils within six inches of the surface. Dominant vegetation includes trees and saplings of bald cypress and water tupelo, with red maple, sweetgum, green ash, and overcup oak. A sparse herbaceous layer includes giant cane, pennywort, lizard's tail, highbush blueberry, grape, sweet pepperbush, cinnamon fern, netted chain fern, and false nettle.

No mammals were directly observed during the field activities although many tracks of white-tailed deer and raccoon as well as evidence of beaver was observed. Due to frequent

flooding it is likely that small mammals are uncommon, although the cotton mouse may be present.

Due to the wetness of the swamp forest a variety of reptiles and amphibians are often present. Marbled salamander, southern dusky salamander, three-lined salamander, gray treefrog, Brimley's chorus frog, river frog, and southern leopard frog are all species that can be found in this habitat. This habitat type is often utilized by water snakes, eastern cottonmouth, snapping turtle, and eastern mud turtle.

During the site visit, a belted kingfisher and a great blue heron were observed. Other birds which may use this habitat for foraging and nesting include prothonotary warbler, downy woodpecker, barred owl, and Acadian flycatcher.

The community corresponds most closely with the Cypress-Gum Swamp Community of the NHP classification system.

Disturbed Wetland Community

This community occurs on the east side of US 301-NC 481 associated with a power line easement and on the west side of US 301-NC 481 associated with an overhead telephone line. Both areas are located at the base of the road embankment and parallel US 301-NC 481 for the length of the project, until a point approximately 76 meters (250 feet) northward of the northern terminus of the US 301-NC 481 bridge. Both areas are irregularly maintained, were inundated at the time of the site inspection, and are of similar vegetative composition. Predominant vegetation includes marsh fern, cinnamon fern, soft rush, shallow sedge, hop sedge, swamp rose mallow, buttonbush, blackberry, lizard's tail, St. Johnswort, jewelweed, fox grape, American elder, marsh dewflower, and arrow arum. In addition, scattered saplings of red maple and sweetgum were present.

Fauna observed within these areas include green treefrog and crayfish. Species which would be likely to utilize this habitat are similar to those found in the swamp forest community. Additional bird species which may utilize this area include common yellowthroat, swamp sparrow, rusty blackbird, and eastern kingbird.

Aquatic Communities

The aquatic community composition, including total species number, species richness, taxa richness and density, and species tolerance data, is reflective of the physical, chemical, and biological condition of the water resource.

Within the project area, Beech Swamp is a low gradient, low order, swamp stream with an undefined channel containing clay/silt substrates with some sand and gravel and having very low water clarity. The stream grades into the surrounding riparian community, which consists of the swamp forest described above.

Beech Swamp provides habitat for a variety of species of fish. According to Wayne Jones, the District 3 Biologist for the North Carolina Wildlife Resources Commission (WRC), game fish species known to exist in Beech Swamp within the project area include largemouth bass, bluegill, warmouth, and redbreast sunfish. Beech Swamp has not been stocked for gamefish species.

The families of benthic macroinvertebrate species found in Beech Swamp during the field survey, are presented in Table 1.

Table 1 Summary of Qualitative Benthic Macroinvertebrate Survey Beech Swamp, 7/24/97			
Taxa	Abundant	Common	Present
Class Insecta			
Order Coleoptera	X		
Order Odonata			
Libellulidae			X
Order Hemiptera			
Corixidae	X		
Order Megaloptera			
Corydalidae			X
Order Diptera			
Chironomidae	X		
Tipulidae			X
Class Crustacea			
Order Amphipoda			
Gammaridae		X	
Order Pelecypoda			
Sphaerium spp.		X	
Phylum Annelida			
Class Oligochaeta		X	

Based on the above survey results, this stream segment generally contains a moderate diversity and abundance of organisms typical of lotic depositional environments in blackwater swamp/stream systems. The survey results are also in general agreement with the types and abundance of the species found during the BMAN monitoring conducted by the DWQ. Lotic depositional environments generally contain fine sediments and slower moving water, with many of the organisms consisting of burrowers or shredders of coarse particulate organic matter.

Summary of Anticipated Impacts

Project construction will have various impacts to the previously described terrestrial and aquatic communities. Any construction activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies potential impacts to the natural communities within the project area in terms of the area impacted and the plants and animals affected. Temporary and permanent impacts are considered here along with recommendations to minimize or eliminate impacts.

Terrestrial Communities

Terrestrial communities in the project area will be impacted by project construction from clearing and paving and loss of the terrestrial community area along US 301-NC 481. Estimated impacts are derived based on the project length for Alternate 1 of 335 meters (1100 feet), and the entire proposed right-of-way width of 30 meters (100 feet). Table 2 details the potential impacts in ha (ac) to terrestrial communities by habitat type. It should be noted that impacts are based on the entire right-of-way width and actual loss of habitat will likely be less.

Table 2 Estimated Area Impacts to Terrestrial Communities		
Community	Alternate 1	
	Permanent Impacts	Temporary Impacts
Disturbed Upland Community	0.19 (0.46)	-
Upland Forest	0.08 (0.19)	0.06 (0.16)
Disturbed Wetland Community	0.03 (0.07)	-
Swamp Forest	0.46 (1.13)	0.21 (0.53)
Total Impacts	0.75 (1.85)	0.27 (0.69)

Destruction of natural communities along the project alignment will result in the loss of foraging and breeding habitats for the various animal species which utilize the area. Animal species will be displaced into surrounding communities. Adult birds, mammals, and some reptiles are mobile enough to avoid mortality during construction. Young animals and less mobile species, such as many amphibians, may suffer direct loss during construction. Plants and animals found in these communities are generally common throughout North Carolina.

Impacts to terrestrial communities can result in the aquatic community receiving heavy sediment loads as a consequence of erosion. Impacts to the forested and disturbed wetland communities, which can also result in increased sediment loads, are discussed later in this document. It is important to understand that construction impacts may not be restricted to the communities in which the construction activity occurs, but may affect downstream communities. Efforts should be made to ensure that no sediment leaves the construction site.

Aquatic Communities

Impacts to aquatic communities include fluctuations in water temperatures due to the loss of riparian vegetation. Shelter and food resources, both in the aquatic and terrestrial portions of these organisms' life cycles, will be affected by losses in the terrestrial communities. The loss of aquatic plants and animals will affect terrestrial fauna which rely on them as a food source.

Temporary and permanent impacts may result to aquatic organisms from increased sedimentation. Aquatic invertebrates may drift downstream during construction and recolonize the disturbed area once it has been stabilized. Sediments have the potential to affect fish and other aquatic life in several ways, including the clogging and abrading of gills and other respiratory surfaces; affecting the habitat by scouring and filling of pools and riffles; altering water chemistry; and smothering different life stages. Increased sedimentation may cause decreased light penetration through an increase in turbidity.

Wet concrete should not come into contact with surface water during bridge construction in order to minimize effects of runoff on the stream water quality. Potential adverse effects can be minimized through the implementation of NCDOT Best Management Practices for Protection of Surface Waters.

JURISDICTIONAL TOPICS

Waters of the United States

Wetlands and surface waters fall under the broad category of "Waters of the United States" as defined in 33 CFR 328.3 and in accordance with provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344), and are regulated by the U.S. Army Corps of Engineers (COE). Any action that proposes to dredge or place fill material into surface waters or wetlands falls under these provisions.

Characteristics of Wetlands and Surface Waters

Jurisdictional wetlands occur on both sides of US 301-NC 481 for the length of the project area, and consist of both a disturbed emergent wetland community (PEM1A) associated with utility easements, and well-developed forested wetlands (PFO1/2 F) associated with Beech Swamp.

Both wetland communities were inundated or saturated at the time of the site visit, which took place immediately after a heavy rainstorm. The emergent wetlands which are associated with the utility easements, and are irregularly maintained, contain hydric soils and obligate and facultative wetland primarily herbaceous species. The primary functions of this disturbed wetland would include sediment stabilization and nutrient retention.

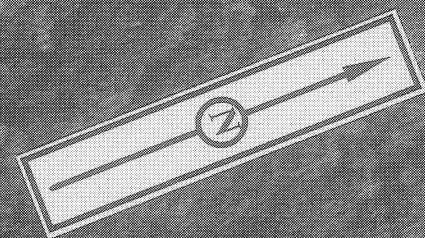
The forested wetlands associated with Beech Swamp would be expected to remain wet for most of the year due to its landscape position. These areas are characterized by saturated soils or standing water, surface drainage patterns, and the presence of obligate or facultative wetland vegetation, including most notably bald cypress and water tupelo. The primary functions of this forested wetland area include flood storage, wildlife habitat, shore stabilization, and nutrient retention.

The DWQ has instituted a numerical rating system from 0-100 to gauge wetland quality. The fourth version of this rating system assesses wetlands on the basis of water storage, pollutant removal, bank/shoreline stabilization, wildlife habitat, aquatic live value, and recreational/educational potential. The DWQ rating for this wetland was calculated to be 70. Based on the experience of the investigators, this forested area is considered to be good to high quality. This is based on its size, maturity, vegetative diversity, and numerous functions it performs.

The main channel of Beech Swamp meets the definition of surface waters. Beech Swamp is therefore classified as Waters of the United States.

Summary of Anticipated Impacts

Highway construction impacts can affect the functions that wetlands perform in an ecosystem. Wetlands influence regional water flow regimes by intercepting and storing storm runoff which ultimately reduces the danger of flooding in surrounding and downstream area.

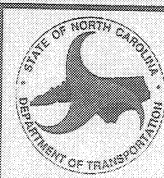


Bridge No. 47

Bridge No. 62

US 301 / NC 481

Alternate One (detour)



North Carolina Department of
Transportation
Division of Highways
Planning & Environmental Branch

Halifax County
Replace Bridge No. 62 on US 301-NC 481
Over Beech Swamp
B-2980

Scale 1:1200

Figure Two



Goodwin

North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

March 7, 1997

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Bridge 62 on US 301-NC 481 over Beech
Swamp, Halifax County, B-2980, Federal Aid
Project BRSTP-301(8), State Project
8.1301701, ER 97-8352



Dear Mr. Graf:

On March 5, 1997, Debbie Bevin of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources, Bridge ⁶²122 is the only structure within the project's area of potential effect that is over fifty years old. We recommend that an architectural historian with NCDOT evaluate the bridge for National Register eligibility and report the findings to us. If the project's scope is expanded to include the replacement of Bridge 47, which was built in 1923, it should be evaluated as well.

There are no known archaeological sites within the proposed project area. Based on our present knowledge of the area, it is unlikely that any archaeological resources which may be eligible for inclusion in the National Register of Historic Places will be affected by the project construction. We, therefore, recommend that no archaeological investigation be conducted in connection with this project.

Having provided this information, we look forward to receipt of either a Categorical Exclusion or Environmental Assessment which indicates how NCDOT addressed our comments.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800.



Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,

A handwritten signature in black ink, appearing to read "David Brook". The signature is fluid and cursive, with the first name "David" being more prominent than the last name "Brook".

David Brook
Deputy State Historic Preservation Officer

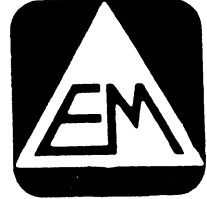
DB:slw

cc: ✓ H. F. Vick
B. Church
T. Padgett



**HALIFAX COUNTY
EMERGENCY MANAGEMENT AGENCY**

P. O. BOX 307
HALIFAX, NORTH CAROLINA 27839



919-583-2031
FAX 919-583-2435

**RICHARD G. CLAYTON
COORDINATOR**

February 12, 1997



H. Franklin Vick, P. E., Manager
North Carolina Department of Transportation
Division of Highways
P. O. Box 25201
Raleigh, N. C. 27611-5201

Mr. Vick:

Subject: Replacement of Bridge No. 62 on US 301, TIP No. B-2980

I have discussed with Wayne Elliott, the emergency services situation during the bridge replacement construction and how it would affect their response capabilities..


Mr. Elliott advised me that a temporary bridge would be constructed prior to the destruction of the old bridge. If this is the case, there would be no need to change the way the emergency units would respond. If for any reason you do not build a temporary bridge, the whole emergency response plan and areas of response will have to be reconfigured.

If the temporary bridge is not built, it would be a great inconvenience to the citizens of Halifax County as they would have to travel many extra miles to attend to business in the county seat of Halifax.

Please advise us if there is a change of plans and the temporary bridge is not built so we may restructure our emergency response areas of responsibility.

If you have any questions on this matter, please call me at 919-583-2031.

Sincerely,


Richard G. Clayton, Coordinator
Halifax County Emergency Management Agency

**CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR
THE NATIONAL REGISTER OF HISTORIC PLACES**

Project Description: Replace Bridge No. 62 on US 301-NC 481 over Beech Swamp

On August 21, 1997, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
- ☐ Federal Highway Administration (FHWA)
- ☒ North Carolina State Historic Preservation Office (SHPO)
- ☐ Other

reviewed the subject project at

- ☐ Scoping meeting
- ☒ Historic architectural resources photograph review session/consultation
- ☐ Other

All parties present agreed

- ☐ there are no properties over fifty years old within the project's area of potential effects.
- ☒ there are no properties less than fifty years old which are considered to meet Criteria Consideration G within the project's area of potential effects.
- ☒ there are properties over fifty years old within the project's area of potential effects, but based on the historical information available and the photographs of each property, the properties identified as **Bridges No. 62 and No. 47** are considered not eligible for the National Register and no further evaluation of them is necessary.
- ☒ there are no National Register-listed properties within the project's area of potential effects.

Signed:

Clay Goffin
Representative, NCDOT

August 21, 1997
Date

Wanda S. Lister
FHWA, for the Division Administrator, or other Federal Agency

9/2/97
Date

Debra K. Bevin
Representative, SHPO

8/21/97
Date

1.1 Date / 1.1 Date / 1.1 Date
State Historic Preservation Officer

9/4/97
Date

Community ID: *Beech Swamp*
Transect ID: *upland forest*
Plot ID:

SOILS

Map Unit Name
(Series and Phase):

Tomotley fine sandy loam

Drainage Class: *poorly drained*

Confirm Mapped Type?

☒ Yes

☐ No

Taxonomy Subgroup:

thermic Typic Ochraquults

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10 YR 4/2	None	None	sandy loam
8-18	B	10 YR 5/2	None	None	sandy loam

Hydric Soil Indicators:

☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Reducing Conditions
☐ Gleyed or Low-Chroma Colors

☐ Concretions
☐ High Organic Content in Surface Layer in Sandy Soils
☐ Organic Streaking in Sandy Soils
☐ Listed on Local Hydric Soils List
☐ Listed on National Hydric Soils List
☐ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?

☒ Yes ☐ No

Wetland Hydrology Present?

☐ Yes ☒ No

Hydric Soils Present?

☐ Yes ☒ No

Is this Sampling Point Within a Wetland?

☐ Yes ☒ No

Remarks:

Jurisdictional criteria are not met

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>B-2980 / Bridge No. 62 Replacement</u> Applicant/Owner: <u>NCDOT</u> Investigation: <u>L. Woerner/S. Moulds</u>	Date: <u>07/23/97</u> County: <u>Halifax</u> State: <u>North Carolina</u>
Do Normal Circumstances exist on the site? Yes <u>X</u> No <u> </u> Is the site significantly disturbed (Atypical Situation)? Yes <u> </u> No <u>X</u> Is the area a potential Problem Area? Yes <u> </u> No <u>X</u> (If needed, explain in remarks.)	Community ID: <u>Beech Swamp</u> Transect ID: <u>upland forest</u> Plot ID: <u> </u>

VEGETATION

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
<i>Pinus taeda</i>	<i>Canopy</i>	<i>FAC</i>	<div style="border: 1px solid black; width: 10px; height: 10px; margin: 0 auto;"></div>			
<i>Liquidambar styraciflua</i>	<i>Canopy</i>	<i>FAC+</i>				
<i>Acer rubrum</i>	<i>Subcan.</i>	<i>FAC</i>				
<i>Arundinaria gigantea</i>	<i>Herb</i>	<i>FACW</i>				
<i>Toxicodendron radicans</i>	<i>Vine</i>	<i>FACW</i>				
<i>Parthenocissus quinquefolia</i>	<i>Vine</i>	<i>FAC</i>				

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks:)</p> <p><u> </u> Stream, Lake or Tide Gauge</p> <p><u> </u> Aerial Photographs</p> <p><u> </u> Other</p> <p><u>X</u> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><u> </u> Inundated</p> <p><u> </u> Saturated in Upper 12 inches</p> <p><u> </u> Water Marks</p> <p><u> </u> Drift Lines</p> <p><u> </u> Sediment Deposits</p> <p><u> </u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><u> </u> Oxidized Root Channels in Upper 12 in.</p> <p><u> </u> Water-Stained Leaves</p> <p><u> </u> Local Soil Survey Data</p> <p><u> </u> FAC-Neutral Test</p> <p><u> </u> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u> </u> (in.)</p> <p>Depth to Free Water in Pit: <u> >14 </u> (in.)</p> <p>Depth to Saturated Soil: <u> >12 </u> (in.)</p>	
<p>Remarks:</p>	

Community ID: *Beech Swamp*
Transect ID: *disturbed wetland*
Plot ID:

SOILS

Map Unit Name (Series and Phase):		<u>Bibb soils</u>		Drainage Class: <u>poorly drained</u>	
Taxonomy Subgroup:		<u>Typic Fluvaquents</u>		Confirm Mapped Type? <u>X</u> Yes <u> </u> No	
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10 YR 3/2	None	None	organics/loam
8-18	B	10 YR 4/1	None	None	silt loam
Hydric Soil Indicators:					
<u> </u> Histosol			<u> </u> Concretions		
<u> </u> Histic Epipedon			<u>X</u> High Organic Content in Surface Layer in Sandy Soils		
<u>X</u> Sulfidic Odor			<u> </u> Organic Streaking in Sandy Soils		
<u>X</u> Aquic Moisture Regime			<u>X</u> Listed on Local Hydric Soils List		
<u> </u> Reducing Conditions			<u>X</u> Listed on National Hydric Soils List		
<u>X</u> Gleyed or Low-Chroma Colors			<u> </u> Other (Explain in Remarks)		
Remarks:					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<u>X</u> Yes	<u> </u> No
Wetland Hydrology Present?	<u>X</u> Yes	<u> </u> No
Hydric Soils Present?	<u>X</u> Yes	<u> </u> No
Is this Sampling Point Within a Wetland?	<u>X</u> Yes	<u> </u> No
Remarks: <i>All jurisdictional criteria are met</i>		

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>B-2980 / Bridge No. 62 Replacement</u> Applicant/Owner: <u>NCDOT</u> Investigation: <u>L. Woerner/S. Moulds</u>	Date: <u>07/23/97</u> County: <u>Halifax</u> State: <u>North Carolina</u>
Do Normal Circumstances exist on the site? Yes <u> </u> No <u> X </u> Is the site significantly disturbed (Atypical Situation)? Yes <u> X </u> No <u> </u> Is the area a potential Problem Area? Yes <u> </u> No <u> X </u> (If needed, explain in remarks.)	Community ID: <u>Beech Swamp</u> Transect ID: <u>disturbed wetland</u> Plot ID: <u> </u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
<i>Acer rubrum</i>	<i>Shrub</i>	<i>FAC</i>	<i>Peltandra virginica</i>	<i>Herb</i>	<i>OBL</i>
<i>Liquidambar styraciflua</i>	<i>Shrub</i>	<i>FAC+</i>			
<i>Impatiens capensis</i>	<i>Shrub</i>	<i>FACW</i>			
<i>Cephalanthus occidentalis</i>	<i>Shrub</i>	<i>OBL</i>			
<i>Sambucus canadensis</i>	<i>Shrub</i>	<i>FACW</i>			
<i>Juncus effusus</i>	<i>Shrub</i>	<i>FACW+</i>			
<i>Carex lurida</i>	<i>Herb</i>	<i>OBL</i>			
<i>Hibiscus moscheutos</i>	<i>Herb</i>	<i>FACW</i>			
<i>Saururus cernuus</i>	<i>Herb</i>	<i>OBL</i>			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100

Remarks: Wetland area is located within an irregularly maintained powerline easement

HYDROLOGY

Recorded Data (Describe in Remarks:) <input type="checkbox"/> Stream, Lake or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 in. <input checked="" type="checkbox"/> Water-Stained Leaves <input checked="" type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u> </u> (in.) Depth to Free Water in Pit: <u> 1 </u> (in.) Depth to Saturated Soil: <u> 0 </u> (in.)	
Remarks:	

Community ID: *Beech Swamp*
Transect ID: *Swamp Forest*
Plot ID:

SOILS

Map Unit Name

(Series and Phase):

Bibb soils

Drainage Class: *poorly drained*

Confirm Mapped Type?

☒ Yes

☐ No

Taxonomy Subgroup:

Typic Fluvaquents

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10 YR 3/2	None	None	organics/loam
8-18	B	10 YR 4/1	None	None	silt loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input checked="" type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Is this Sampling Point Within a Wetland?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Remarks: *All jurisdictional criteria are met*

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>B-2980 / Bridge No. 62 Replacement</u> Applicant/Owner: <u>NCDOT</u> Investigation: <u>L.Woerner/S.Moulds</u>	Date: <u>07/23/97</u> County: <u>Halifax</u> State: <u>North Carolina</u>
Do Normal Circumstances exist on the site? Yes <u>X</u> No <u> </u> Is the site significantly disturbed (Atypical Situation)? Yes <u> </u> No <u>X</u> Is the area a potential Problem Area? Yes <u> </u> No <u>X</u> (If needed, explain in remarks.)	Community ID: <u>Beech Swamp</u> Transect ID: <u>Swamp Forest</u> Plot ID: <u> </u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
<i>Taxodium distichum</i>	Canopy	OBL	<i>Vitis rotundifolia</i>	Vine	FAC
<i>Fraxinus pennsylvanica</i>	Canopy	FACW			
<i>Liquidambar styraciflua</i>	Canopy	FAC+			
<i>Nyssa aquatica</i>	Canopy	OBL			
<i>Acer rubrum</i>	Subcan.	FACW			
<i>Clethra alnifolia</i>	Shrub	FACW			
<i>Arundinaria gigantea</i>	Herb	FACW			
<i>Boehmeria cylindrica</i>	Herb	FACW			
<i>Saururus cernuus</i>	Herb	OBL			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) 100

Remarks:

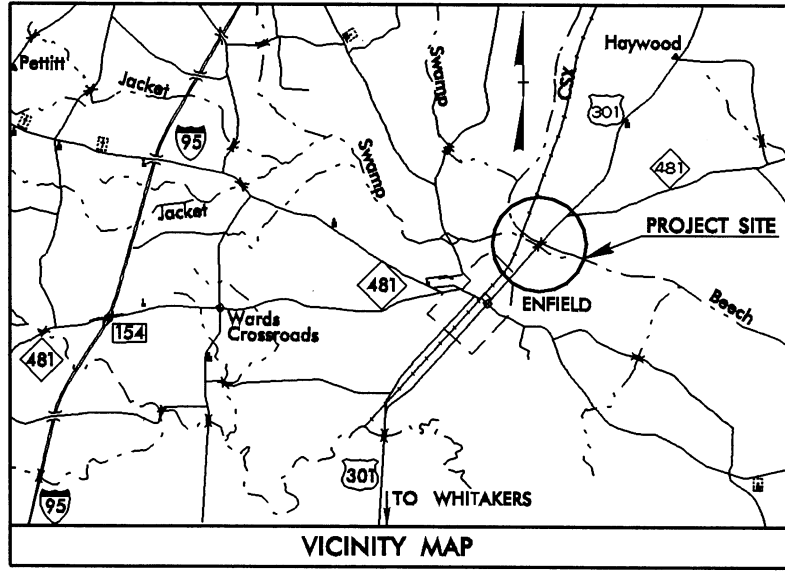
HYDROLOGY

Recorded Data (Describe in Remarks:) <u> </u> Stream, Lake or Tide Gauge <u> </u> Aerial Photographs <u> </u> Other <u>X</u> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <u>X</u> Inundated <u>X</u> Saturated in Upper 12 inches <u>X</u> Water Marks <u>X</u> Drift Lines <u> </u> Sediment Deposits <u>X</u> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <u> </u> Oxidized Root Channels in Upper 12 in. <u>X</u> Water-Stained Leaves <u>X</u> Local Soil Survey Data <u>X</u> FAC-Neutral Test <u> </u> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0-1</u> (in.) Depth to Free Water in Pit: <u>1</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks:

7/01/99

CONTRACT: C200761 TIP PROJECT: B-2980

See Sheet I-A For Index of Sheets
See Sheet I-B For Conventional Symbols



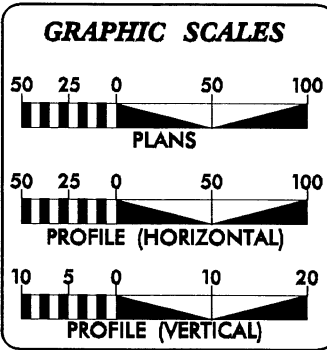
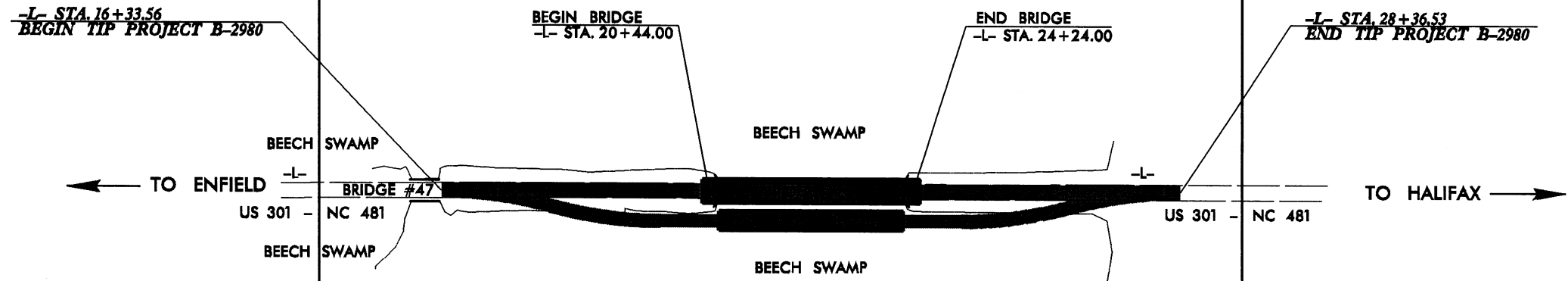
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HALIFAX COUNTY

LOCATION: BRIDGE NO. 62 ON US 301-NC 481
OVER BEECH SWAMP.

TYPE OF WORK: STRUCTURE, GRADING, DRAINAGE AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-2980	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
32792.1.1	BRSTP-301 (8)	PE	
32792.2.1	BRSTP-301 (8)	ROW	
32792.3.1	BRSTP-301 (8)	CONST.	



DESIGN DATA

ADT 2000 =	4700 VPD
ADT 2020 =	8200 VPD
DHV =	10 %
D =	55 %
T =	11 % *
V =	60 MPH
* TTST 6 %	DUAL 5 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-2980 =	0.156 MILES
LENGTH STRUCTURE TIP PROJECT B-2980 =	0.072 MILES
TOTAL LENGTH OF TIP PROJECT B-2980 =	0.228 MILES

Prepared In the Office of:

DIVISION OF HIGHWAYS

1995 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 19, 1999

LETTING DATE:
SEPTEMBER 16, 2003

RONALD D. ALLEN, PE
PROJECT ENGINEER

JEANIE TYSON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Signature: _____ P.E.

ROADWAY DESIGN ENGINEER

Signature: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Signature: _____ P.E.

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	-----
Curb	-----
Prop. Slope Stakes Cut	-----C-----
Prop. Slope Stakes Fill	-----F-----
Prop. Woven Wire Fence	-----○-----
Prop. Chain Link Fence	-----□-----
Prop. Barbed Wire Fence	-----◇-----
Prop. Wheelchair Ramp	-----WCRP-----
Exist. Guardrail	-----Y-----
Prop. Guardrail	-----Y-----
Equality Symbol	-----⊕-----
Pavement Removal	-----X-----

RIGHT OF WAY

Baseline Control Point	-----◆-----
Existing Right of Way Marker	-----△-----
Exist. Right of Way Line w/Marker	-----△-----
Prop. Right of Way Line with Proposed RW Marker (Iron Pin & Cap)	-----▲-----
Prop. Right of Way Line with Proposed (Concrete or Granite) RW Marker	-----⊙-----
Exist. Control of Access Line	-----⊙-----
Prop. Control of Access Line	-----⊙-----
Exist. Easement Line	-----E-----
Prop. Temp. Construction Easement Line	-----E-----
Prop. Temp. Drainage Easement Line	-----TDE-----
Prop. Perm. Drainage Easement Line	-----PDE-----

HYDROLOGY

Stream or Body of Water	-----
Flow Arrow	-----→-----
Disappearing Stream	-----Y-----
Spring	-----○-----
Swamp Marsh	-----⋈-----
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----

STRUCTURES

MAJOR	
Bridge, Tunnel, or Box Culvert	-----CONC-----
Bridge Wing Wall, Head Wall and End Wall	-----CONC WW-----

MINOR	
Head & End Wall	-----CONC HW-----
Pipe Culvert	=====
Footbridge	-----X-----
Drainage Boxes	-----CB-----
Paved Ditch Gutter	-----

UTILITIES

Exist. Pole	-----●-----
Exist. Power Pole	-----●-----
Prop. Power Pole	-----○-----
Exist. Telephone Pole	-----●-----
Prop. Telephone Pole	-----○-----
Exist. Joint Use Pole	-----●-----
Prop. Joint Use Pole	-----○-----
Telephone Pedestal	-----□-----
Cable TV Pedestal	-----□-----
Hydrant	-----◇-----
Satellite Dish	-----◇-----
Exist. Water Valve	-----⊗-----
Sewer Clean Out	-----⊕-----
Power Manhole	-----⊕-----
Telephone Booth	-----□-----
Water Manhole	-----⊕-----
Light Pole	-----◇-----
H-Frame Pole	-----◇-----
Power Line Tower	-----◇-----
Pole with Base	-----◇-----
Gas Valve	-----◇-----
Gas Meter	-----◇-----
Telephone Manhole	-----⊕-----
Power Transformer	-----⊕-----
Sanitary Sewer Manhole	-----⊕-----
Storm Sewer Manhole	-----⊕-----
Tank; Water, Gas, Oil	-----○-----
Water Tank With Legs	-----○-----
Traffic Signal Junction Box	-----□-----
Fiber Optic Splice Box	-----□-----
Television or Radio Tower	-----⊕-----
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement	-----TS-----

Recorded Water Line	-----W-----
Designated Water Line (S.U.E.*)	-----W-----
Sanitary Sewer	-----SS-----
Recorded Sanitary Sewer Force Main	-----FSS-----
Designated Sanitary Sewer Force Main(S.U.E.*)	-----FSS-----
Recorded Gas Line	-----G-----
Designated Gas Line (S.U.E.*)	-----G-----
Storm Sewer	-----S-----
Recorded Power Line	-----P-----
Designated Power Line (S.U.E.*)	-----P-----
Recorded Telephone Cable	-----T-----
Designated Telephone Cable (S.U.E.*)	-----T-----
Recorded U/G Telephone Conduit	-----TC-----
Designated U/G Telephone Conduit (S.U.E.*)	-----TC-----
Unknown Utility (S.U.E.*)	-----?UTL-----
Recorded Television Cable	-----TV-----
Designated Television Cable (S.U.E.*)	-----TV-----
Recorded Fiber Optics Cable	-----FO-----
Designated Fiber Optics Cable (S.U.E.*)	-----FO-----
Exist. Water Meter	-----⊕-----
U/G Test Hole (S.U.E.*)	-----⊕-----
Abandoned According to U/G Record	-----ATTUR-----
End of Information	-----E.O.I-----

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	-----P-----
Exist. Iron Pin	-----⊕-----
Property Corner	-----⊕-----
Property Monument	-----ECM-----
Property Number	-----123-----
Parcel Number	-----6-----
Fence Line	-----X-----
Existing Wetland Boundaries	-----WLB-----
Proposed Wetland Boundaries	-----WLB-----
Existing Endangered Animal Boundaries	-----EAB-----
Existing Endangered Plant Boundaries	-----EPB-----

BUILDINGS & OTHER CULTURE

Buildings	-----
Foundations	-----
Area Outline	-----
Gate	-----
Gas Pump Vent or U/G Tank Cap	-----
Church	-----
School	-----
Park	-----
Cemetery	-----
Dam	-----
Sign	-----
Well	-----
Small Mine	-----
Swimming Pool	-----

TOPOGRAPHY

Loose Surface	-----
Hard Surface	-----
Change in Road Surface	-----
Curb	-----
Right of Way Symbol	-----R/W-----
Guard Post	-----⊕-----
Paved Walk	-----
Bridge	-----
Box Culvert or Tunnel	-----
Ferry	-----
Culvert	-----
Footbridge	-----
Trail, Footpath	-----
Light House	-----

VEGETATION

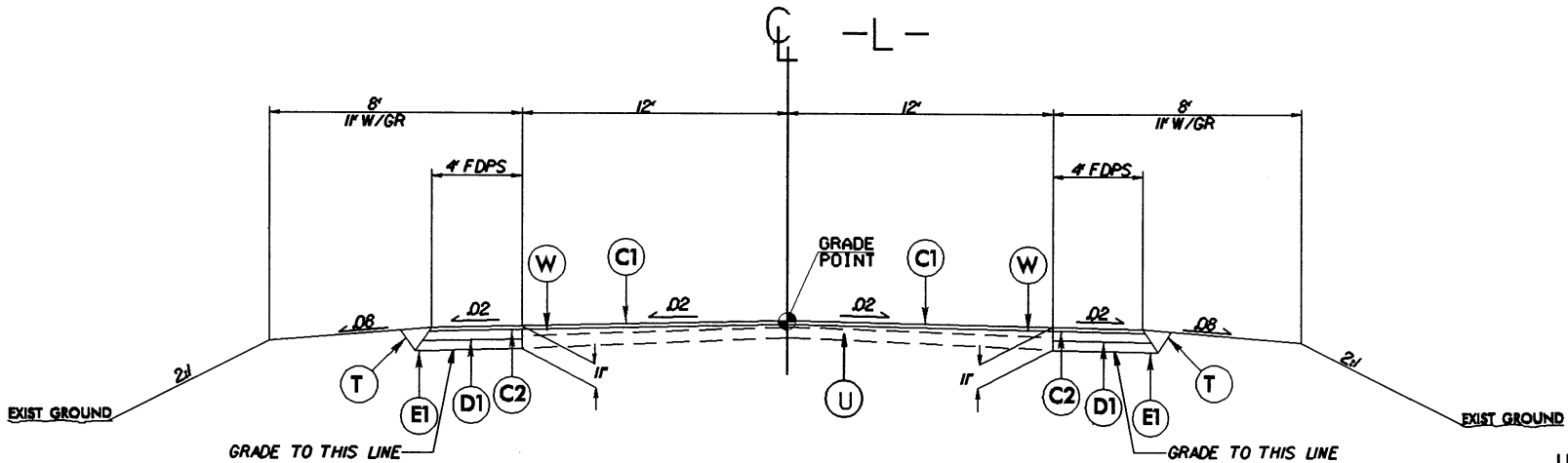
Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

RAILROADS

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE 80.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE 80.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 80.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 3 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 110.0B, AT AN AVERAGE RATE OF 309 LBS. PER SQ. YD.
D2	PROP. APPROX. 2 1/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 110.0B, AT AN AVERAGE RATE OF 268.6 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 110.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 6 1/2" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT

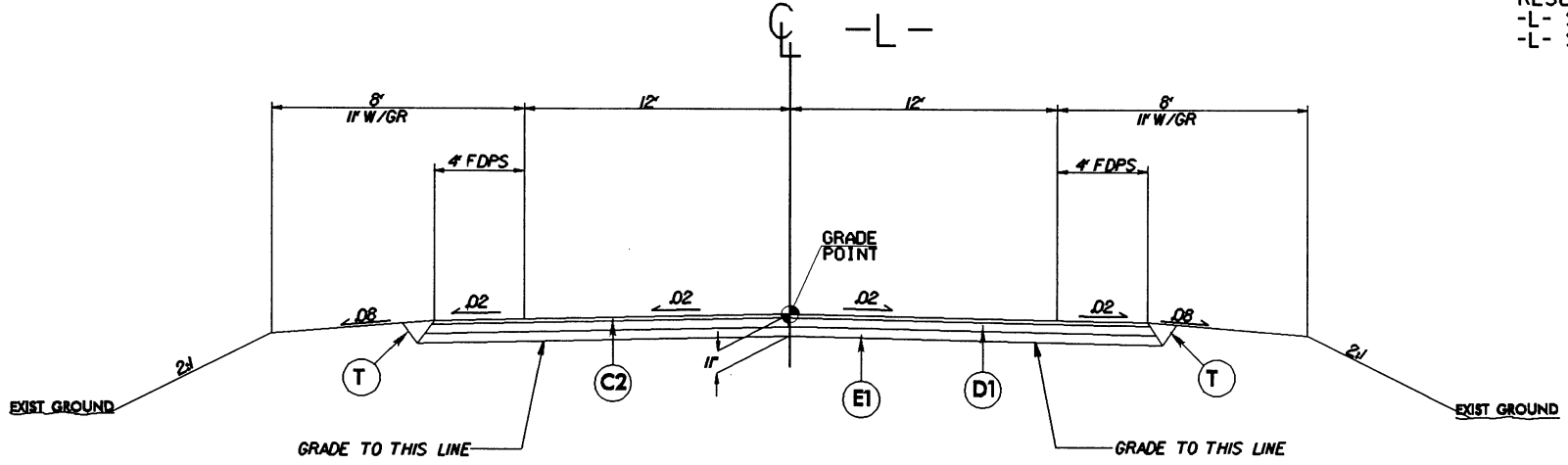
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

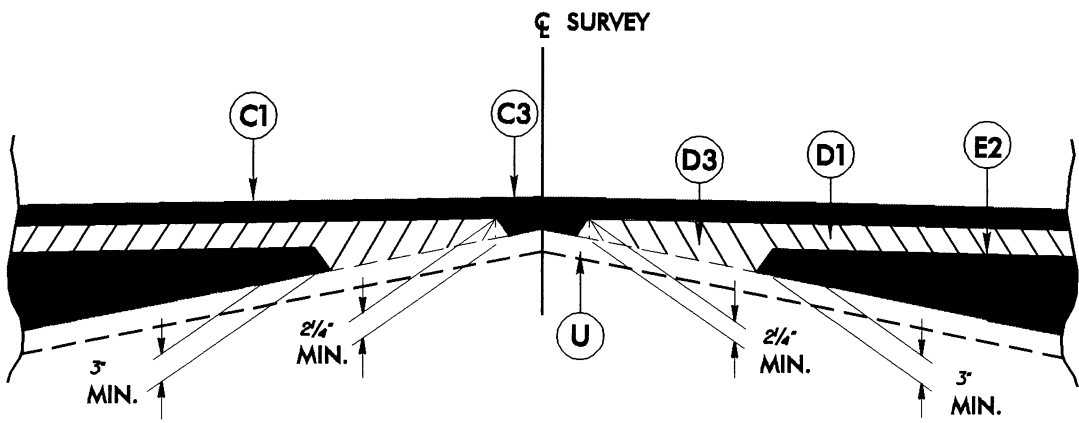
RESURFACE EXISTING WITH 1" S9.5B
 -L- STA. 16+33.56 TO STA. 19+00.00
 -L- STA. 26+00.00 TO STA. 28+36.53
 RESURFACE AND WIDENING
 -L- STA. 19+00.00 TO STA. 20+00.00
 -L- STA. 24+75.00 TO STA. 26+00.00



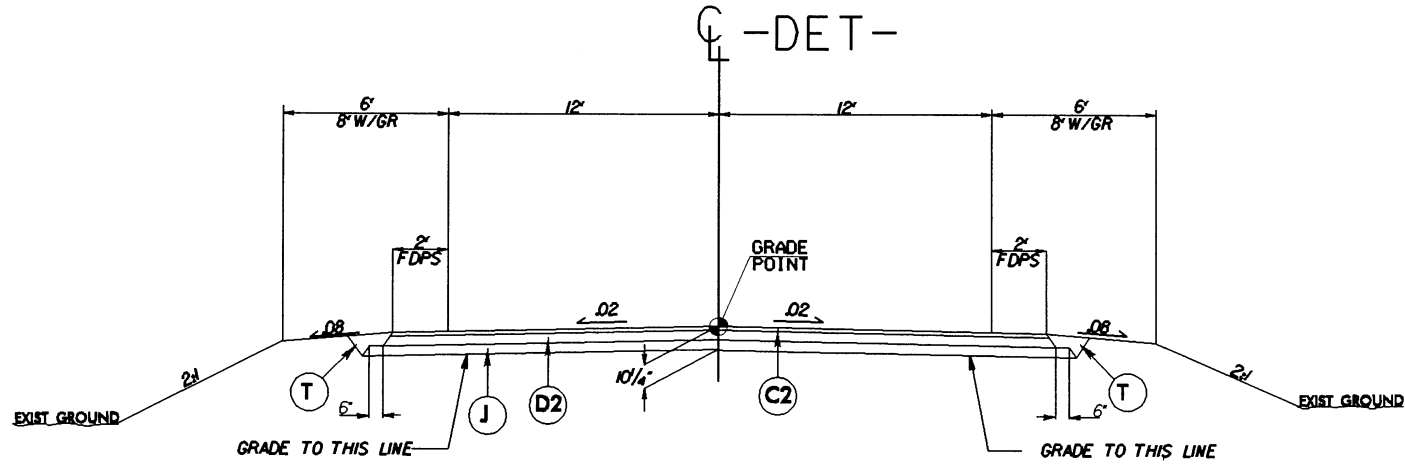
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-L- STA. 20+00.00 TO STA. 20+44.00 (BEGIN BRIDGE)
 -L- STA. 24+24.00 (END BRIDGE) TO STA. 24+75.00



Detail Showing Method of Wedging



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-DET- STA. 17+50.00 TO STA. 20+75.00 (BEGIN BRIDGE)
 -DET- STA. 24+10.00 (END BRIDGE) TO STA. 27+50.00

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

[illegible]

GUARDRAIL SUMMARY

[illegible]

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	EMBT + %	BORROW	WASTE
-DET-				
16 + 33.56 - 20 + 75.00	10	5721	5711	
24 + 10.00 - 28 + 45.21	13	5283	5270	
SUBTOTAL	23	11004	10981	
-L-				
17 + 50.00 - 20 + 65.00	23	675	652	
24 + 10.00 - 27 + 00.00	22	1080	1058	
SUBTOTAL	45	1755	1710	
-DET- REMOVAL				
16 + 33.56 - 20 + 75.00	3759			3759
24 + 10.00 - 28 + 45.21	3596			3596
SUBTOTAL	7355			7355
PROJECT TOTAL	7423	12759	12691	7355
5% TO REPLACE TOPSOIL ON BORROW PIT			635	
GRAND TOTAL	7423		13326	
SAY	7500		13400	
UNDERCUT EXCAVATION 500 CY				

SUMMARY OF PAVEMENT REMOVAL

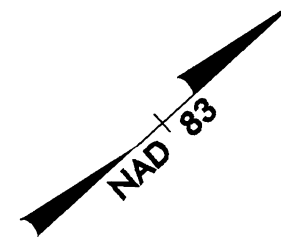
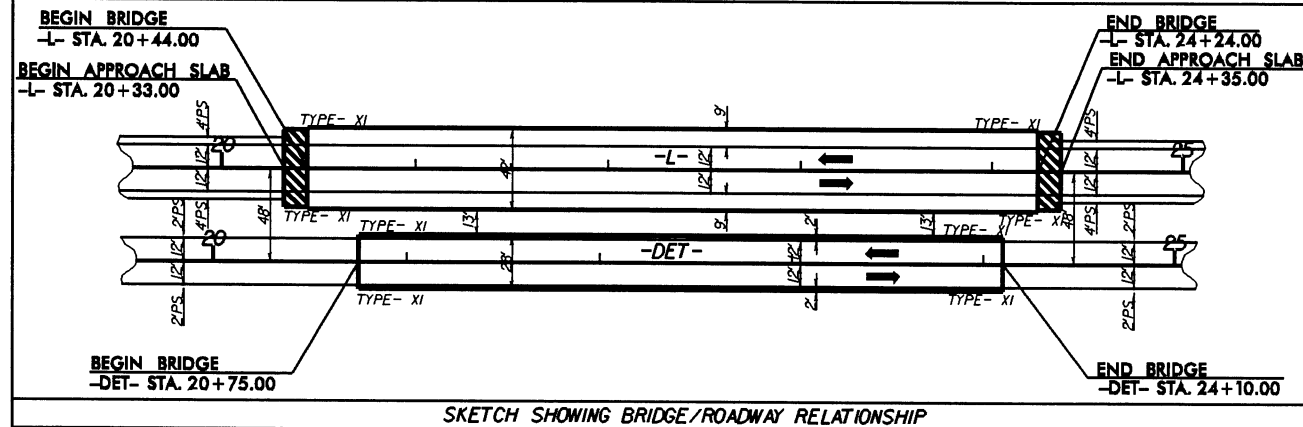
STATION - STATION	LOCATION	SY
-L-		
20 + 00.00 - 20 + 83.40	-L- C	260.66
23 + 87.12 - 24 + 75.00	-L- C	267.79
SUBTOTAL		528.45
-DET-		
16 + 84.90 - 20 + 75.00	-DET- C	853.39
24 + 10.00 - 27 + 00.00	-DET- C	834.37
SUBTOTAL		1687.76
PROJECT TOTAL		2216.21
SAY		2300.00

7/2/99

REVISIONS

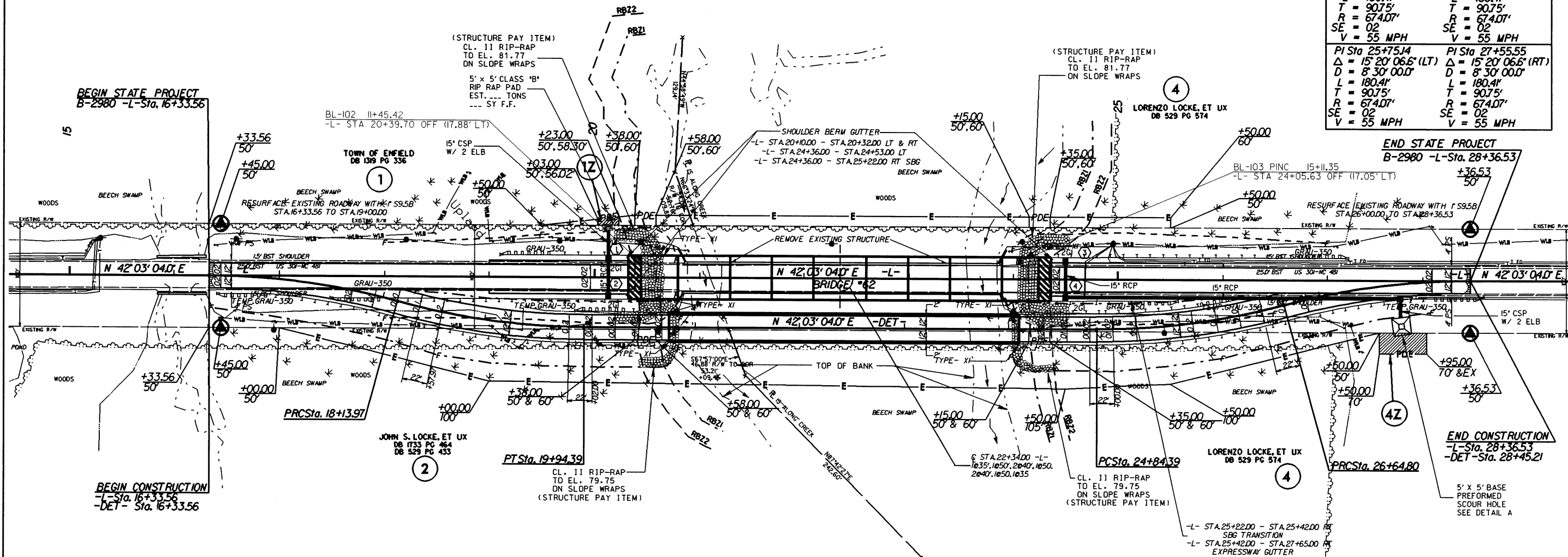
10/31/00 R/W REVISION REVISED PROPERTY OWNER AND PROPERTY LINES FOR PARCELS 10,12 & 3. REVISED PROPOSED R/W AND CONSTRUCTION EASEMENT FLAGGING, B.M.
09/04/02 R/W REVISION CONVERTED A PORTION OF THE TCE TO PDE ON PARCEL 1, ADDED PERMANENT DRAINAGE EASEMENT ON PARCEL 4.

NOTE: BL-101 STA 5+00.00 N 891.475.013 E 2.398.242.598
-L- STA 16+33.56 N 46 10'14.9" E 239.90'



PROJECT REFERENCE NO.	SHEET NO.
B-2980	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-DET-	
PI Sta 17+24.31	PI Sta 19+04.72
Δ = 15' 20' 06.6" (RT)	Δ = 15' 20' 06.6" (LT)
D = 8' 30' 00.0"	D = 8' 30' 00.0"
L = 180.41'	L = 180.41'
T = 90.75'	T = 90.75'
R = 674.07'	R = 674.07'
SE = 02	SE = 02
V = 55 MPH	V = 55 MPH
PI Sta 25+75.14	PI Sta 27+55.55
Δ = 15' 20' 06.6" (LT)	Δ = 15' 20' 06.6" (RT)
D = 8' 30' 00.0"	D = 8' 30' 00.0"
L = 180.41'	L = 180.41'
T = 90.75'	T = 90.75'
R = 674.07'	R = 674.07'
SE = 02	SE = 02
V = 55 MPH	V = 55 MPH

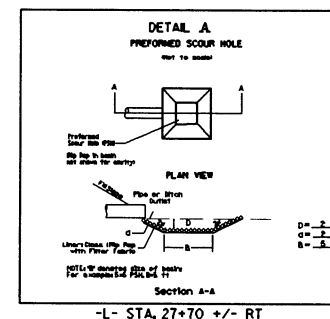


DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY MOGS FOR MONUMENT "SAFELITE" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 889560.068(1) EASTING: 239646.812(1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00000829 THE N.C. LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SAFELITE" TO L- STATION 16+33.56 IS N 42° 40' 39.00" E 283070 FT ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS MVD 29

NOTE: "SOIL STABILIZATION FABRIC SHALL BE USED IN LIEU OF UNDERCUT FOR THE DETOUR APPROACHES. THE FABRIC SHALL EXTEND FROM THE TOE OF THE EXISTING EMBANKMENT TO THE TOE OF THE DETOUR EMBANKMENT."

NOTE: SEE TCP-3 PLANS FOR LOCATIONS OF TEMPORARY SHORING



NOTE: BL-104 STA 21+79.61 N 892.723.078 E 2.399.366.622
-L- STA 28+36.53 S 37 35' 07.3" W 238.09'

DETOUR DESIGN SPEED = 55MPH

-L- SLOPE STAKE
-DET- SLOPE STAKE
FOR PROFILE -DET- SEE SHEET 5
FOR PROFILE -L- SEE SHEET 5
SEE SHEET S-1 THRU S-37 FOR STRUCTURE PLANS

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5/28/99

B.M. # 110 R.R. SPIKE IN BASE OF 18" GUM AT
-BL-STA.4+19.04 OFF 86.75' RIGHT EL. 80.81'
N 891,356.803 E 2,398,252.899
B.M. #110 TO -L- STA 16+33.56
327.63' N 29 47' 15.03" E

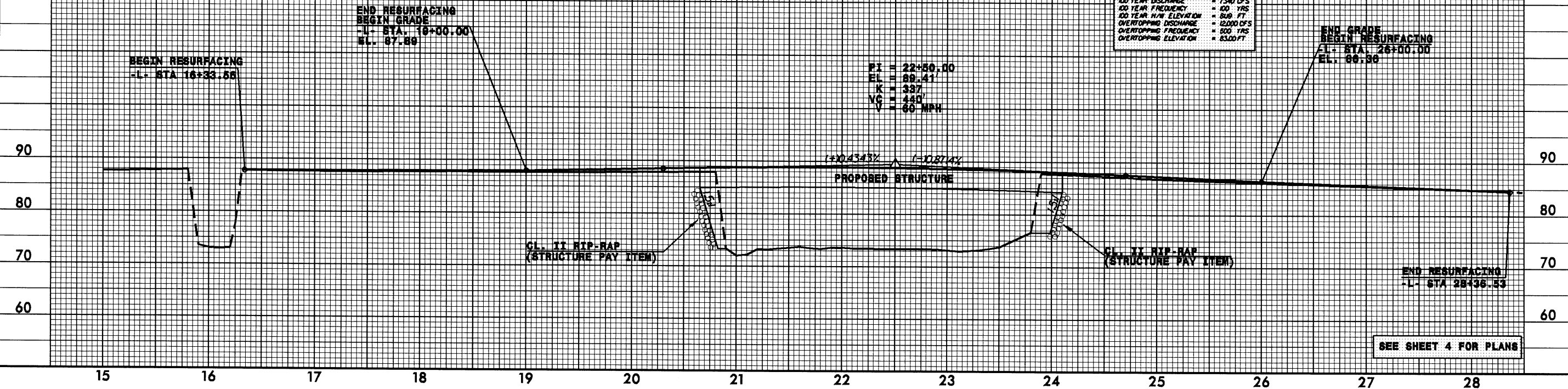
B.M. # 111 R.R. SPIKE IN BASE OF 9" GUM AT
-BL-STA.10+64.73 OFF 93.89' RIGHT EL. 78.84'

B.M. # 112 R.R. SPIKE IN BASE OF 12" GUM AT
-BL-STA.25+16.02 OFF 38.55' LEFT EL. 79.51'
N 892,999.140 E 2,399,552.708
B.M. # 112 TO -L- STA 28+36.53
576.60' S 36 17' 38.49" W

PROJECT REFERENCE NO.
B-2980
ROADWAY DESIGN
ENGINEER

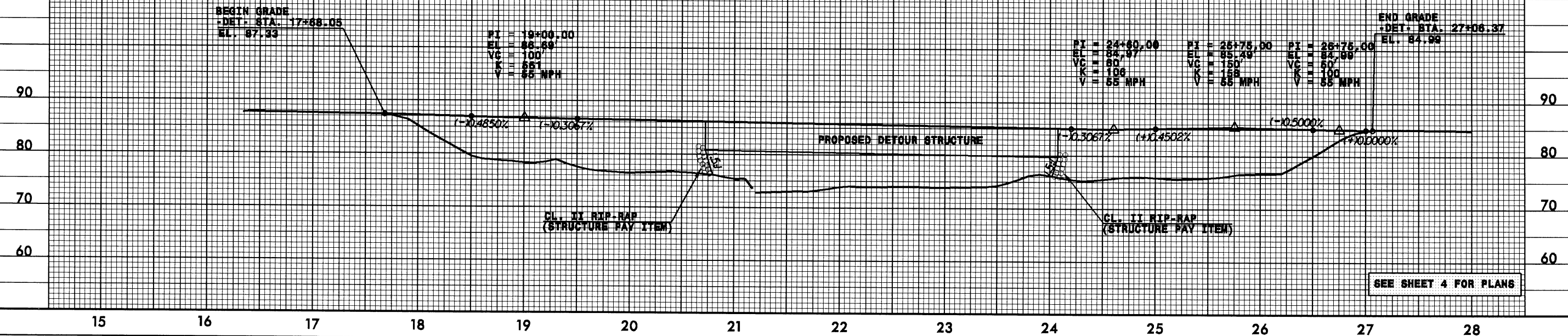
SHEET NO.
5
HYDRAULICS
ENGINEER

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 5800 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 80.71 FT
100 YEAR DISCHARGE	= 7340 CFS
100 YEAR FREQUENCY	= 100 YRS
100 YEAR HW ELEVATION	= 81.9 FT
OVERTOPPING DISCHARGE	= 12000 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 83.00 FT



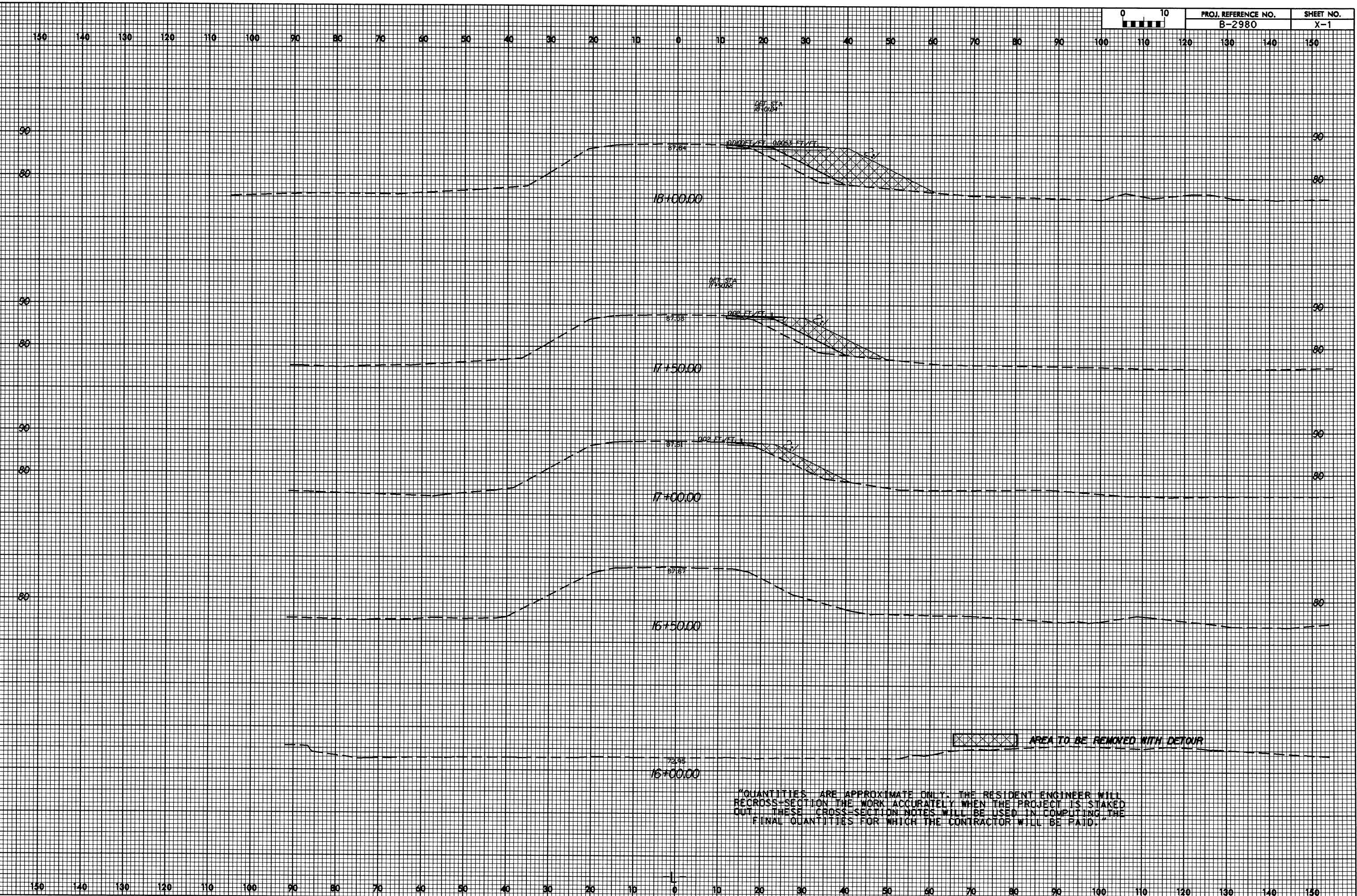
-DET-

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 2535 CFS
DESIGN FREQUENCY	= 5 YRS
DESIGN HW ELEVATION	= 78.75 FT



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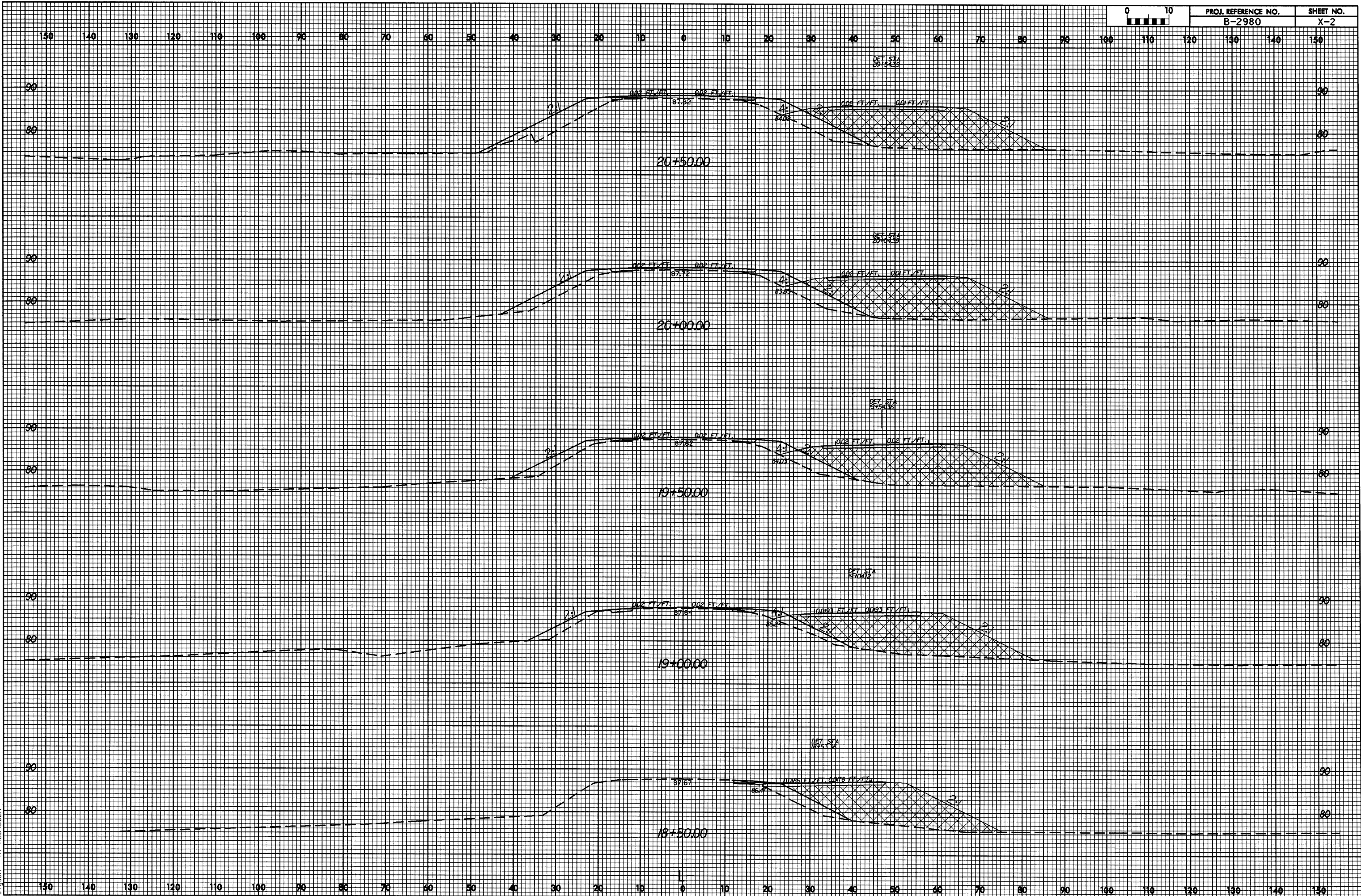
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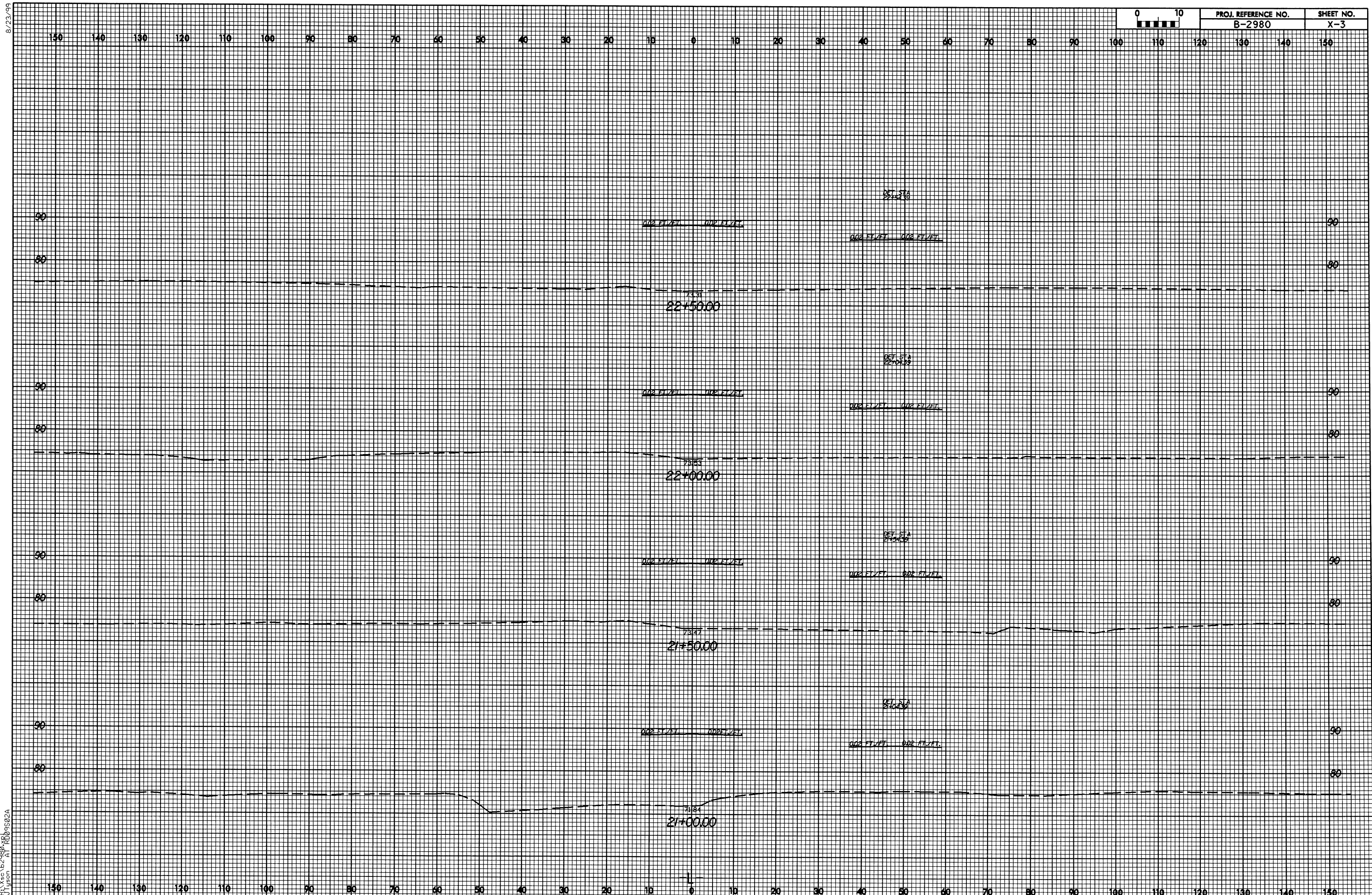


PROJ. REFERENCE NO.	SHEET NO.
B-2980	X-1

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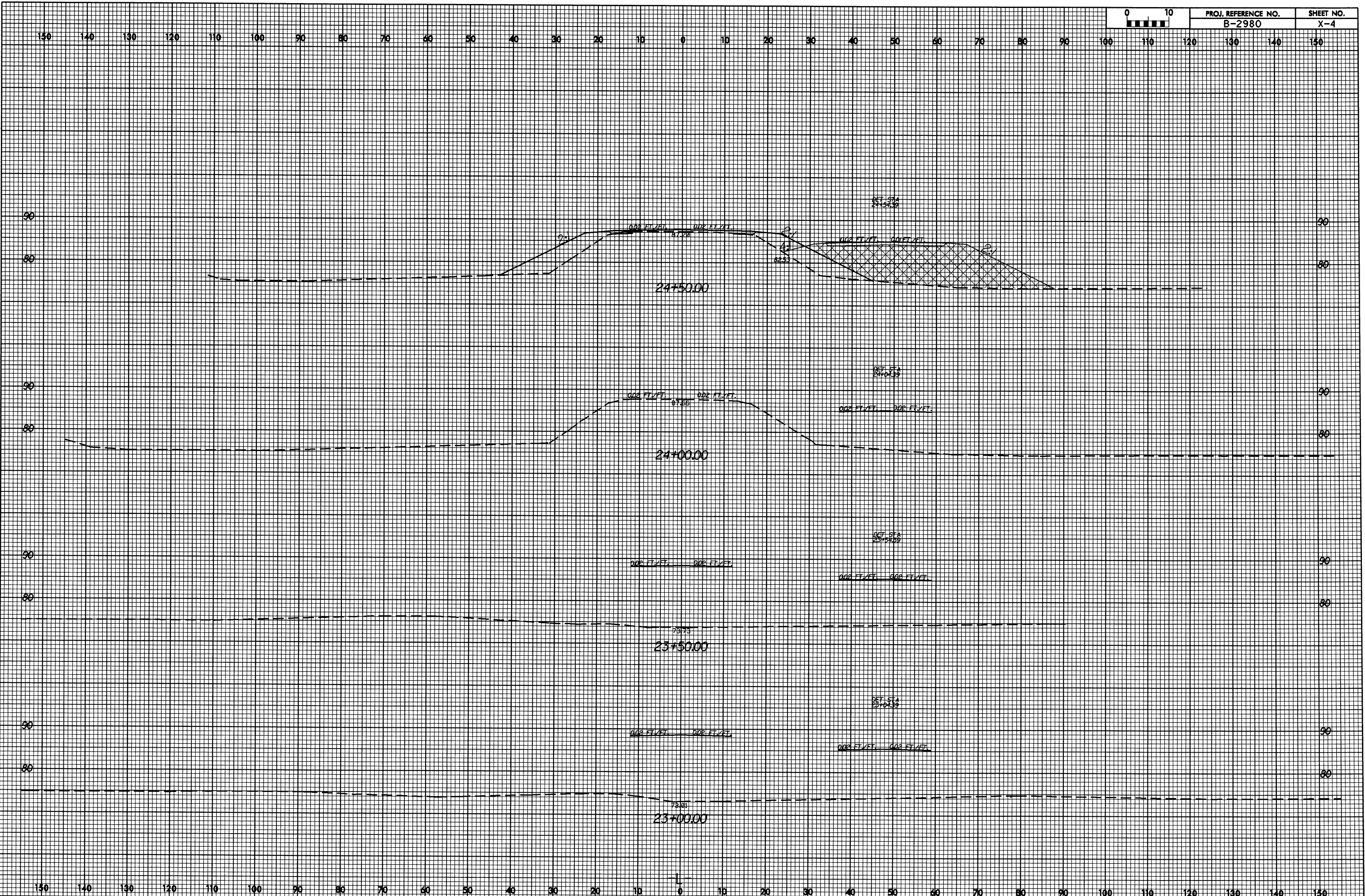
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